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15 *Attorneys for Plaintiff NuVasive, Inc.*

16 **UNITED STATES DISTRICT COURT**  
17 **SOUTHERN DISTRICT OF CALIFORNIA**  
18 **SAN DIEGO DIVISION**

19	NUVASIVE, INC., a Delaware	)	CASE NO. <u>'18CV0347 GPC BLM</u>
	corporation,	)	
20		)	COMPLAINT FOR PATENT
21	Plaintiff,	)	INFRINGEMENT
		)	
22	v.	)	
		)	<b>JURY TRIAL DEMANDED</b>
23	ALPHATEC HOLDINGS, INC., a	)	
24	Delaware corporation and ALPHATEC	)	
25	SPINE, INC., a California corporation,	)	
		)	
26	Defendants.	)	

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1 Plaintiff NuVasive, Inc. (“NuVasive”) hereby files this Complaint against  
2 Defendants Alphatec Holdings, Inc. and Alphatec Spine, Inc. (collectively,  
3 “Alphatec” or “Defendants”) for Alphatec’s infringement of NuVasive’s U.S.  
4 Patent No. 7,819,801; U.S. Patent No. 8,355,780; U.S. Patent No. 8,439,832; U.S.  
5 Patent No. 9,833,227; U.S. Patent No. 8,753,270; U.S. Patent No. 8,361,156; U.S.  
6 Design Patent No. D750,252; and U.S. Design Patent No. D652,519 (collectively,  
7 “the NuVasive Patents”). On personal knowledge as to NuVasive’s own actions  
8 and on information and belief as to the actions of others, NuVasive alleges as  
9 follows:

10 **I. THE PARTIES**

- 11 1. Plaintiff NuVasive is a Delaware corporation with its principal place  
12 of business at 7475 Lusk Boulevard, San Diego, California 92121.
- 13 2. On information and belief, Defendant Alphatec Holdings, Inc. is a  
14 Delaware corporation with its principal place of business at 5818 El Camino Real,  
15 Carlsbad, California 92008.
- 16 3. On information and belief, Defendant Alphatec Spine, Inc. is a  
17 California corporation with its principal place of business at 5818 El Camino Real,  
18 Carlsbad, California 92008.
- 19 4. On information and belief, Defendant Alphatec Spine, Inc. operates as  
20 a wholly-owned subsidiary of Defendant Alphatec Holdings, Inc.

21 **II. JURISDICTION AND VENUE**

- 22 5. This Complaint arises under the patent laws of the United States, Title  
23 35 of the United States Code. This Court has subject matter jurisdiction over this  
24 action under 35 U.S.C. § 271 *et seq.*, 28 U.S.C. §§ 1331 and 1338(a).
- 25 6. The Court has personal jurisdiction over Defendants because each  
26 Defendant transacts substantial business in the State of California, directly or  
27 through intermediaries, regularly does or solicits business in California, has  
28 committed acts in California giving rise to the causes of action alleged in this

1 Complaint, maintains continuous and systematic contacts in California,  
2 purposefully avails itself of the privileges of doing business in California, and/or  
3 derives substantial revenue from goods and services provided to individuals in  
4 California. In addition, each Defendant is registered to do business in the State of  
5 California and maintains an agent for service of process in California.

6 7. Venue is proper in this judicial district pursuant to 28 U.S.C.  
7 § 1400(b) because each Defendant: (1) resides in this District, and/or (2) has  
8 committed acts of infringement and has a regular and established place of business  
9 in this District.

### 10 **III. FACTUAL BACKGROUND**

#### 11 **A. NuVasive—The Pioneer Of Minimally Invasive Spine Surgery** 12 **And Lateral Interbody Fusion Procedures**

13 8. NuVasive, founded in 1997, is a leading medical device company  
14 focused on minimally disruptive surgical products and procedurally integrated  
15 solutions for the spine. NuVasive pioneered the market for minimally invasive  
16 spine surgery and lateral interbody fusion procedures. NuVasive has established  
17 itself as the market leader, and has a built a reputation as an innovator, of lateral  
18 spinal fusion technologies.

19 9. Spinal fusion surgery, at a basic level, is used to “fuse” two adjacent  
20 vertebrae of the spine together so that they heal into a single, solid bone. It is  
21 commonly performed to correct chronic back pain caused by diseased or damaged  
22 intervertebral discs. The procedure involves removing some, or all, of the diseased  
23 or damaged disc and inserting a spinal implant in the resulting disc space. The  
24 inserted implant restores height and induces bone growth between adjacent  
25 vertebrae.

26 10. NuVasive invented a spinal fusion procedure named the eXtreme  
27 Lateral Interbody Fusion, or “XLIF.” Before XLIF, the surgical community  
28 believed lateral approaches to the spine (*i.e.*, approaching the spine from the side

1 of the patient) during spine surgeries, which required moving through the nerve-  
2 rich psoas muscle, posed too high of a risk of nerve damage to be workable. That  
3 changed, however, when NuVasive invented XLIF: the first spinal surgery using a  
4 lateral, transpsoas approach to the spine.

5 11. NuVasive invented not only the surgical methods, but also the first  
6 devices for performing lateral spinal surgeries. These devices include access tools  
7 which are used to create an operative corridor from the side of the patient to the  
8 spine. These access tools are compatible with neuromonitoring, which NuVasive  
9 also invented. The neuromonitoring compatible access tools allow a surgeon to  
10 locate nerves while navigating a path to the spine. NuVasive also invented  
11 CoRoent<sup>®</sup> implants, which include implants specially designed for lateral insertion.  
12 In comparison to spinal fusion procedures using other approaches, XLIF offers a  
13 number of benefits, including minimal disruption to the soft tissue, reduced  
14 operative time, shorter postoperative recovery time and less time in the hospital,  
15 lower complication rates, and smaller incision, among many more.

16 12. From 2001-2004, NuVasive expended substantial capital (between  
17 \$20,000,000 and \$30,000,000) and human resources in developing its innovations  
18 and in the commercialization of XLIF. Ex. A (IPR2014-00075, July 8, 2014  
19 Declaration of Patrick Miles) at ¶ 10.

20 13. When XLIF was first introduced in 2003, it was met with substantial  
21 skepticism from the majority of the spine surgeon community. *Id.* at ¶ 12.

22 14. NuVasive put substantial resources into educating the spinal  
23 community to overcome that skepticism and show that XLIF was indeed a safer  
24 and more effective solution for spinal fusion, especially in the lower lumbar  
25 region. *Id.* at ¶ 14.

26 15. Through NuVasive's education efforts, surgeons began adopting  
27 XLIF into their practices at an ever-increasing rate, and saw improved patient  
28 outcomes. NuVasive saw the sea-change in attitude in a variety of ways, including



1 through the growth of NuVasive’s business, through the interest at industry  
2 meetings, through the number of surgeons contacting NuVasive for training on  
3 XLIF over the years, and through publications regarding XLIF’s revolutionary  
4 approach. *Id.* at ¶ 16.

5 16. NuVasive created the commercial market for lateral fusion products.  
6 *Id.* at ¶ 23. There was no lateral fusion market at the time of launch of the XLIF  
7 procedure. It is a testament to the procedure (and the instruments which enabled it)  
8 that NuVasive was able to essentially create a new market. *Id.* at ¶ 30.

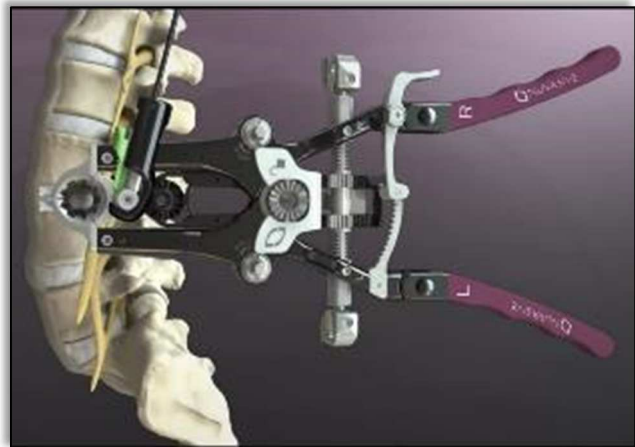
9 17. NuVasive experienced unprecedented growth for a small spinal  
10 startup. *Id.* at ¶ 25. The growth of NuVasive has been a direct result of XLIF  
11 success. *Id.* XLIF has redefined minimally disruptive surgery by providing an  
12 efficient, reproducible lateral procedure that is minimally disruptive with  
13 associated benefits (*e.g.*, less blood loss, etc.). *Id.* And, at the center of  
14 NuVasive’s success has been its XLIF procedure and associated equipment, which  
15 are at the core of NuVasive’s business. *Id.* at ¶ 27.

16 **B. NuVasive’s XLIF Technology**

17 18. One of the key components of NuVasive’s XLIF technology is a  
18 system of specialized access tools that are compatible with neuromonitoring that  
19 NuVasive developed as part of the XLIF platform to create a small operative  
20 corridor through the side of the patient and through the nerve-rich psoas muscle to  
21 access the spine.

22 19. The access tools include sequential dilators, which are a series of  
23 successively larger dilators used to create and then incrementally widen an opening  
24 to the spine. Specifically, once a smaller dilator has been inserted, a larger dilator  
25 is slid over the previously inserted smaller dilator. The sequential dilators include  
26 directional electrodes at their distal ends which electrically stimulate nerves in the  
27 psoas muscle. The nerve responses are monitored and used by surgeons to assist in  
28 creating a surgical path to the spine.

1           20. As part of the specialized access tools, NuVasive also developed a  
2 line of retractors which are referred to as the MaXcess<sup>®</sup> retractors. During the  
3 XLIF procedure, the MaXcess<sup>®</sup> retractor slides over the largest sequential dilator  
4 and gently enlarges and holds open the operating corridor. The MaXcess<sup>®</sup>  
5 retractors include an access driver and three independently adjustable blades: (1) a  
6 posterior blade (located towards the back of the patient), also referred to as the “C”  
7 or “central” blade; (2) a caudal blade (located towards the feet of the patient), also  
8 referred to as the “L” or “left” blade; and (3) a cephalad blade (located towards the  
9 head of the patient), also referred to as the “R” or “right” blade. The three-bladed  
10 design allows a surgeon to anchor the posterior blade using an Intradiscal Shim and  
11 stabilize the position of the retractor using an articulating arm. During the XLIF  
12 procedure, one end of the articulating arm is attached to the retractor while the  
13 other end is secured to the operating table. One of the blades of the MaXcess<sup>®</sup>  
14 retractor can also be equipped with a neuromonitoring electrode. The special  
15 design of the MaXcess<sup>®</sup> retractors provides maximum access to the target area of  
16 the spine with minimal disruption to the surrounding tissue, as illustrated in the  
17 figures below (screenshots of “MaXcess SD” video at 0:50, 0:25, 0:41,  
18 respectively, available at [https://www.youtube.com/watch?v=J3aLnVD\\_ymU](https://www.youtube.com/watch?v=J3aLnVD_ymU)).





10           21.       The XLIF surgery also utilizes NuVasive’s CoRoent<sup>®</sup> line of  
11 implants. As depicted below, the CoRoent<sup>®</sup> XLIF implants are sized to span the  
12 entire width of the vertebral body to provide maximum vertebral body support. In  
13 comparison, implants inserted through non-lateral spinal fusion surgeries have a  
14 much smaller footprint and therefore provide weaker intervertebral support. Due  
15 to anatomical structures surrounding the spine, inserting implants having  
16 dimensions as large as CoRoent<sup>®</sup> using non-lateral spinal fusion surgeries (such as  
17 ALIF, PLIF, or TLIF)<sup>1</sup> would involve unacceptable risk. However, such implants  
18 are routinely inserted using a lateral approach to the spine with NuVasive’s XLIF  
19 technology.

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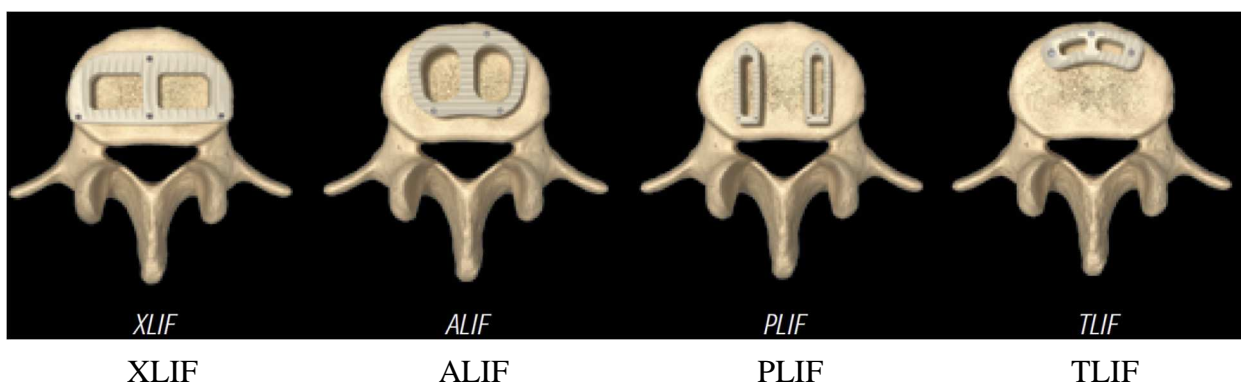
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26 <sup>1</sup> “ALIF” refers to a spinal fusion surgery utilizing an anterior approach to the  
27 spine, “PLIF” a posterior approach to the spine, and “TLIF” a “transforaminal,” or  
28 angled approached to the spine from the posterior.

1 NuVasive's CoRoent<sup>®</sup> implant (Ex. B at 7)



7 **Comparison of NuVasive's CoRoent<sup>®</sup> implant to Implants Placed in Non-**  
8 **Lateral Procedures**



15 22. NuVasive's CoRoent<sup>®</sup> line of implants also includes radiopaque  
16 markers for a surgeon to determine whether the implant is correctly placed in the  
17 disc space. These markers are specially placed after considering the dimensions of  
18 CoRoent<sup>®</sup> and its intended orientation on the vertebral disc.

19 23. NuVasive is the pioneer of XLIF. To that end, NuVasive has and  
20 continues to offer on-site training sessions for surgeons to learn XLIF first-hand.  
21 In addition, NuVasive describes and demonstrates the XLIF procedure and  
22 instrumentation through XLIF Surgical Technique Guides, including a 2003, 2006,  
23 2007, and 2013 edition. *E.g.*, Ex. D (NuVasive XLIF Surgical Technique (2013)  
24 ("2013 NuVasive Surgical Guide")); Ex. E (NuVasive XLIF Surgical Technique  
25 (2007) ("2007 NuVasive Surgical Guide")).

26 24. Over 400 published clinical studies support the XLIF procedure and  
27 hundreds of surgeons worldwide have successfully performed the XLIF procedure  
28 on thousands of patients.

1           25. In order to protect its investments and cutting-edge intellectual  
2 property relating to XLIF, as well as other advancements in spinal developments,  
3 NuVasive regularly seeks and obtains patents from the United States Patent and  
4 Trademark Office (“USPTO”). As of February 13, 2018, NuVasive has been  
5 granted over 350 patents in the United States and has numerous pending patent  
6 applications.

7           **C. Alphatec Has Struggled Since Its Inception In 2006 And, After**  
8           **Failing In Its Introduction Of Guided Lumbar Interbody Fusion**  
9           **(“GLIF”), Attempted To Reinvent Itself By Introducing Its**  
10           **Battalion™ Lateral Technology**

11           26. Alphatec is a medical device company that provides hardware,  
12 equipment, and implants for use in spinal surgery. Since its inception, Alphatec  
13 has incurred net losses every year. In a 2018 corporate presentation, Alphatec  
14 described its history with phrases such as “Poor Decisions/Challenges,” “Missed  
15 globalization expectations,” and “Invested in technologies that never  
16 commercialized.” Ex. F (Alphatec Corporate Presentation (January 2018)) at 4.

17           27. Alphatec reported that in 2006, the year that Alphatec went public, its  
18 net loss was nearly \$26 million. Ex. G (Excerpt from Alphatec Holdings Form 10-  
19 K Annual Report 2006) at 56.

20           28. On information and belief, Alphatec tried, but failed, to achieve  
21 success with a “lateral” spinal procedure and system. That procedure and system  
22 was named “Guided Lumbar Interbody Fusion,” or “GLIF.” GLIF approached the  
23 spine at an angle between the side and back of the patient.

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Ex. H (Alphatec Spine Arc Portal Access System Guided Lumbar Interbody Fusion Surgical Technique Guide) at 1.

29. Starting from at least as early as 2008, Alphatec was developing prototypes and designing products for GLIF. Ex. I (Excerpt from Alphatec Holdings Form 10-K Annual Report 2008) at 12. Alphatec's press releases mention only one GLIF procedure ever being performed – in 2011. Ex. J (January 4, 2011 Alphatec Press Release).

30. On information and belief, Alphatec stopped publicly discussing GLIF as of Alphatec's Annual Report for 2013.

31. By 2013, Alphatec's net losses had increased to approximately \$82 million, compared to a net loss of nearly \$26 million in 2006, the year that Alphatec went public. Ex. K (Excerpt from Alphatec Holdings Form 10-K Annual Report 2013) at 41; Ex. G (Alphatec Holdings Form 10-K Annual Report 2006) at 56. In just seven years, Alphatec's net losses had grown by over 300%.

32. Alphatec reported that Alphatec's debt due to contractual obligations (including lines of credit) and commercial commitments increased from \$27 million in 2006 to nearly \$190 million in 2013. Ex. G (Alphatec Holdings Form 10-K Annual Report 2006) at 68; Ex. K (Alphatec Holdings Form 10-K Annual Report 2013) at 51.

1           33.     Alphatec reported that at the end of 2013, Alphatec’s stock price was  
2 about \$2 dollars, compared to about \$5 at the end of 2009. Ex. K (Alphatec  
3 Holdings Form 10-K Annual Report) at F-28; Ex. L (Excerpt from Alphatec  
4 Holdings Form 10-K Annual Report 2009) at F-33.

5           34.     In an effort to accumulate cash, Alphatec implemented major changes  
6 to its business in 2014-2015, including shifting its research and development  
7 resources, and refocusing its product portfolio pipeline, toward the lateral market  
8 for spine, the market that NuVasive had created. Ex. M (Excerpt from Alphatec  
9 Spine 2014 Annual Report) at 1. According to Alphatec’s public statements, a few  
10 years later, in April 2017, Alphatec made a limited release of a lateral spinal  
11 surgery system, named the “Battalion™ Lateral System.” Ex. N. On information  
12 and belief, it took Alphatec several years to launch Battalion™ Lateral System  
13 after initiating its lateral development program in part because Alphatec was  
14 distracted by financial hardships and efforts to restructure its business.

15           35.     At the end of 2015, Alphatec’s financial circumstances had become  
16 dire. Alphatec reported that at the end of 2015, Alphatec failed to comply with its  
17 financial covenants under its credit facility agreements, constituting an event of  
18 default. Ex. O (Excerpt from Alphatec Holdings Form 10-K Annual Report 2015)  
19 at 28. Alphatec’s 2015 Annual Report expressly stated “[t]here is substantial doubt  
20 concerning our ability to continue as a going concern.” *Id.* at 27.

21           36.     Alphatec reported that in 2015, Alphatec incurred an annual net loss  
22 of approximately \$178 million, and its stock prices declined to \$0.30. *Id.* at 39, 50.  
23 Alphatec was in danger of being delisted for failing to comply with NASDAQ’s  
24 requirement of maintaining a closing bid of \$1.00 per share. *Id.* at 31-32.  
25 However, Alphatec negotiated with NASDAQ and was able to obtain an extended  
26 deadline of September 2016 to regain compliance. Ex. P (Excerpt from Alphatec  
27 Holdings Form 10-Q Quarterly Report for the Period Ending June 30, 2016) at 31.

1 37. Meanwhile, Alphatec continued to face financial hardships. It failed  
2 to comply with its financial covenants with its credit facilities in 2016 for the  
3 months of January, February, March, April, May, and June. Ex. Q (Excerpt from  
4 Alphatec Holdings Form 10-K Annual Report 2016) at 29.

5 38. Alphatec reported that in July 2016, Alphatec sold its international  
6 business to Globus Medical, Inc. in exchange for \$80 million in cash and a credit  
7 line of \$30 million (the “Globus Transaction”). *Id.* at 8.

8 39. Alphatec reported that as part of the Globus Transaction, Alphatec  
9 agreed to exit the international market for a certain period of time. *Id.*

10 40. Alphatec reported that in 2016, Alphatec reduced its workforce to  
11 “reduce operating expenses” and “more appropriately size the Company’s  
12 resources to better reflect the needs of a U.S.-focused organization.” Ex. R  
13 (October 5, 2016 Alphatec Press Release).

14 41. Alphatec reported that after the Globus Transaction, Alphatec  
15 regained compliance with NASDAQ’s listing requirements. Ex. Q (Alphatec  
16 Holdings Form 10-K Annual Report 2016) at 32.

17 42. Alphatec reported that in connection with the Globus Transaction,  
18 “[t]his enhanced liquidity will enable the company to support the continued  
19 expansion in the U.S. of ... the launches of our new Battalion Lateral System ....”  
20 Ex. S (July 26, 2016 Alphatec Press Release).

21 **D. A Full Release Of Alphatec’s Battalion™ Lateral Technology**  
22 **Took Place In October Of 2017**

23 43. According to Alphatec’s public statements, Alphatec made a limited  
24 release of the Battalion™ Lateral System with the Squadron™ Lateral Retractor,  
25 which is specifically designed for use in a lateral, transpsoas procedure (“Alphatec  
26 Lateral Procedure”) in April 2017. Ex. N (April 7, 2017 Alphatec Press Release).  
27 On information and belief, Alphatec initiated a full launch of its Battalion™  
28



1 Lateral System with the Squadron™ Lateral Retractor in October of 2017. Exhibit  
2 T (November 9, 2017 Alphatec Press Release) at 1.

3 44. The Alphatec Battalion™ Lateral Thoracolumbar Surgical Technique  
4 Guide (“Alphatec Surgical Guide”), attached hereto as Exhibit U, describes the  
5 Battalion™ Lateral System and the Alphatec Lateral Procedure.

6 45. The Battalion™ Lateral System includes the Battalion™ Lateral  
7 Spacer (*i.e.*, an implant). Ex. U at 2, 28.

8 46. The Battalion™ Lateral System includes the Initial Dilator. *Id.* at 6.

9 47. The Battalion™ Lateral System includes the Secondary Dilator. *Id.* at  
10 8.

11 48. The Battalion™ Lateral System includes the Squadron™ Lateral  
12 Retractor Body. *Id.* at 17.

13 49. The Battalion™ Lateral System includes the Squadron™ Lateral  
14 Retractor Right Blade. *Id.* at 6-7, 13.

15 50. The Battalion™ Lateral System includes the Squadron™ Lateral  
16 Retractor Left Blade. *Id.*

17 51. The Battalion™ Lateral System includes the Squadron™ Lateral  
18 Retractor Posterior Blade. *Id.*

19 52. The Battalion™ Lateral System includes the Squadron™ Lateral  
20 Retractor Left Handle Arm. *Id.* at 9.

21 53. The Battalion™ Lateral System includes the Squadron™ Lateral  
22 Retractor Right Handle Arm. *Id.*

23 54. The Battalion™ Lateral System includes the Intradiscal Shim. *Id.* at  
24 19.

25 55. On information and belief, through at least the Alphatec Surgical  
26 Guide, Alphatec instructs surgeons to implement the Battalion™ Lateral System.

1           56.    On information and belief, Alphatec conducts in-person training and  
2 education courses for surgeons demonstrating the Alphatec Lateral Procedure  
3 using the Battalion™ Lateral System with the Squadron™ Lateral Retractor.

4           **E.    A Comparison Of The Alphatec Surgical Guide And The**  
5           **NuVasive XLIF Surgical Technique Guide Shows That Alphatec’s**  
6           **Battalion™ Lateral Technology Was Copied From NuVasive**

7           57.    The Alphatec Surgical Guide (Ex. U) and the NuVasive XLIF  
8 Surgical Technique Guides (Exs. D and E) are compared below.

9           58.    On information and belief, Alphatec’s research and development of  
10 the Alphatec Lateral Procedure and related instrumentation commenced in 2014.  
11 At that time, Alphatec was aware of NuVasive, XLIF, and NuVasive’s extensive  
12 XLIF patent portfolio.

13          59.    On information and belief, all editions (from 2003-2013) of the  
14 NuVasive XLIF Surgical Technique Guides were also known to Alphatec  
15 throughout development of the Alphatec Lateral Procedure and related  
16 instrumentation.

17          60.    The cover of the 2013 edition of NuVasive’s XLIF Surgical  
18 Technique Guide (“2013 NuVasive Surgical Guide”) illustrates a top view of the  
19 MaXcess® retractor (as seen by the surgeon performing the operation) providing  
20 access to the target intervertebral disc. Ex. D at 1.

21          61.    In a similar manner, the Alphatec Surgical Guide illustrates the  
22 Squadron™ Lateral Retractor providing access to the target intervertebral disc.  
23 Ex. U at 1.

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2013 NuVasive Surgical Guide Cover	Alphatec Surgical Guide Cover
	

62. The 2013 NuVasive Surgical Guide describes the following XLIF procedure steps: (1) Patient Positioning & Operating Room setup, (2) Anatomic Identification And Initial Incisions, (3) Retroperitoneal Access, (4) Retroperitoneal Approach, (5) Transpsoas Approach, (6) Retractor Assembly, (7) Access, (8) Annulotomy And Disc Space Preparation, (9) Implant Sizing, and (10) Implant Placement. *See Ex. D.*

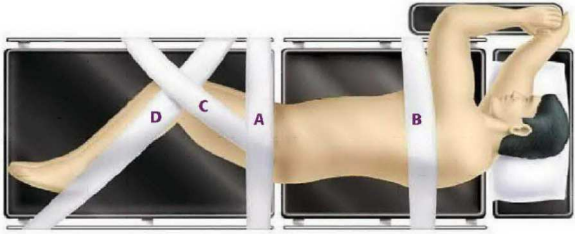
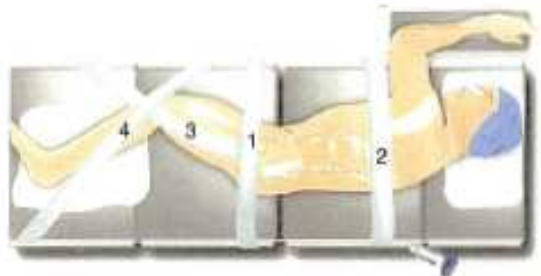
63. The Alphatec Surgical Guide instructs surgeons how and when to perform these steps. *See Ex. U.*

**(i) XLIF Patient Positioning And Operating Room Setup**

64. NuVasive first instructs that the patient should be placed in the lateral decubitus position with the greater trochanter over a table break and secured to the operating room table by tape at specific locations: (A) below the iliac crest, (B) over the thoracic region, (C) from the iliac crest to the knee, then secured to the table, and (D) from the table to the knee, past the ankle, then secured to the table. *E.g., Ex. E (2007 NuVasive Surgical Guide) at 12.*

1           65.    The Alphatec Surgical Guide instructs its surgeons to “[p]lace the  
2 patient in a lateral decubitus position on a bendable (breaking) table so that the  
3 patient’s greater trochanter sits directly above the table break.” Ex. U (Alphatec  
4 Surgical Guide) at 3. The Alphatec Surgical Guide further instructs that “the  
5 patient should be taped at the following locations: Below the iliac crest [;] Over the  
6 thoracic region [;] From the iliac crest to the knee ... (tape will then be secured to  
7 the table) [; and] From under the table on the ipsilateral side, to the knee, past the  
8 ankle and then to the contralateral side under the table.” *Id.*

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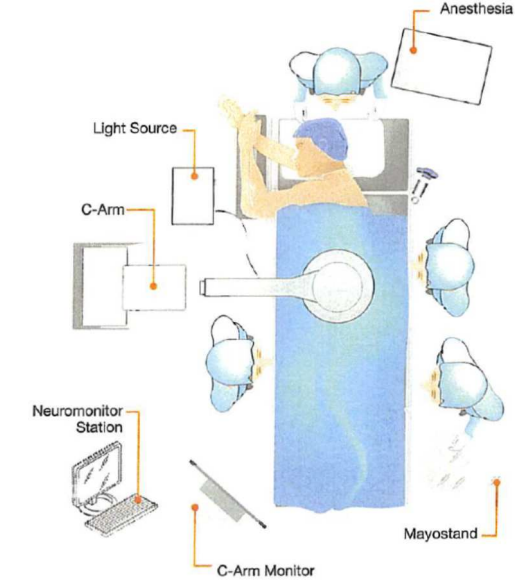
<b>NuVasive XLIF Procedure</b>	<b>Alphatec Lateral Procedure</b>
 <p data-bbox="342 1077 816 1150">Ex. E (2007 NuVasive Surgical Guide) at 12 Fig. 1.</p>	 <p data-bbox="915 1119 1482 1150">Ex. U (Alphatec Surgical Guide) at 3.</p>

66.    NuVasive then depicts the appropriate placement of the surgical equipment. *E.g.*, Ex. E (2007 NuVasive Surgical Guide) at 12.

67.    The Alphatec Surgical Guide depicts the appropriate placement of the surgical equipment. Ex. U (Alphatec Surgical Guide) at 3.

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NuVasive XLIF Procedure	Alphatec Lateral Procedure
 <p>The diagram shows a patient lying on a table in a surgical room. A surgeon in blue scrubs is performing a procedure. Labels include 'NEUROVISION' (a monitor), 'ANESTHESIA' (a box), 'FLUORO' (a monitor), and 'FLUORO MONITOR' (a monitor). A small caption '(Fig. 5)' is at the bottom right of the diagram.</p> <p>Ex. E (2007 NuVasive Surgical Guide) at 12 Fig. 4.</p>	 <p>The diagram shows a patient lying on a table in a surgical room. A surgeon in blue scrubs is performing a procedure. Labels include 'Anesthesia' (a box), 'Light Source' (a box), 'C-Arm' (a box), 'C-Arm Monitor' (a monitor), 'Neuromonitor Station' (a monitor), and 'Mayostand' (a stand).</p> <p>Ex. U (Alphatec Surgical Guide) at 3.<sup>2</sup></p>

**(ii) XLIF Anatomic Landmark Identification And Initial Incisions**

68. NuVasive then instructs surgeons to localize the disc space using lateral fluoroscopy and mark the skin to serve as the location of the skin incision. *E.g.*, Ex. D (2013 NuVasive Alphatec Surgical Guide) at 7.

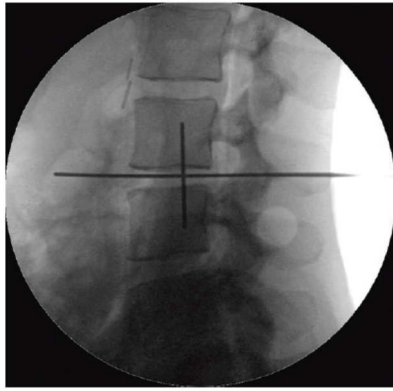
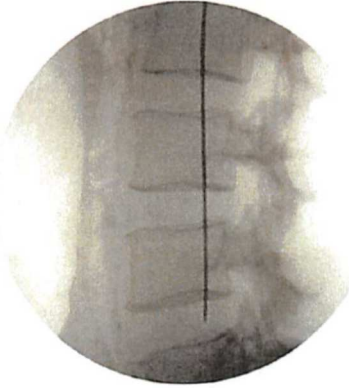
69. The Alphatec Surgical Guide instructs surgeons to “localize the operative level using true lateral fluoroscopy. With ink, make a mark on the skin to serve as the location for the initial skin incision at the operative level.” Ex. U (Alphatec Surgical Guide) at 4.

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<sup>2</sup> “FLUORO” in NuVasive’s figure and “C-Arm” in Alphatec’s figure refer to the same machine: a C-arm fluoroscopic X-ray machine.

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<b>NuVasive XLIF Procedure</b>	<b>Alphatec Lateral Procedure</b>
 <p data-bbox="305 661 893 743">Ex. E (2007 NuVasive Surgical Guide) at 7 Fig. 9(3).</p>	 <p data-bbox="966 661 1458 743">Ex. U (Alphatec Surgical Guide) at 3.</p>

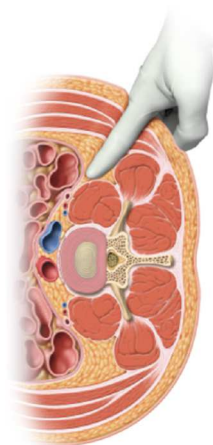
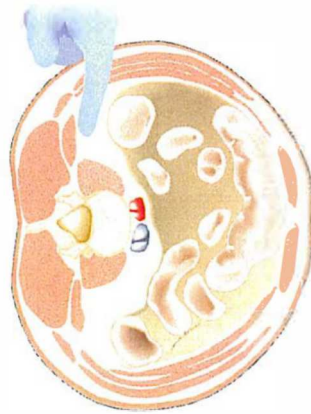
**(iii) XLIF Retroperitoneal Access**

70. NuVasive next teaches that the subcutaneous tissue layers “are dissected using alternating blunt scissor and finger dissection.” *E.g.*, Ex. D (2013 NuVasive Surgical Guide) at 8. “Once inside the retroperitoneal space, the index finger is used to create space and release the peritoneum anteriorly []. When the peritoneum is released, the finger is then used to palpate the psoas muscle.” *Id.*

71. Alphatec instructs surgeons to “dissect subcutaneous tissue layers by alternating with blunt scissors and finger dissection until the retroperitoneal space is reached. Once inside the retroperitoneal space, carefully sweep the peritoneum anteriorly. Once the peritoneum has been swept anteriorly, use the index finger to palpate the psoas muscle.” Ex. U (Alphatec Surgical Guide) at 4-5.

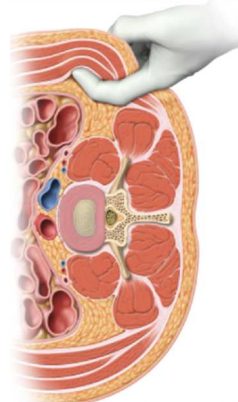

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NuVasive XLIF Procedure	Alphatec Lateral Procedure
 <p data-bbox="316 714 909 787">Ex. D (2013 NuVasive Surgical Guide) at 8 Fig. 12.</p>	 <p data-bbox="974 693 1461 766">Ex. U (Alphatec Surgical Guide) at 5.</p>

72. Next, NuVasive describes that “[t]he index finger is brought up to the inside abdominal wall underneath the lateral skin mark [ ]. This step ensures that a safe pathway exists between the abdominal wall and the psoas muscle.” *E.g.*, Ex. D (2013 NuVasive Surgical Guide) at 9.

73. The Alphatec Surgical Guide instructs surgeons to “[c]reate a safe pathway between the abdominal wall and the psoas muscle by using the index finger to sweep up to the inside of the abdominal wall directly underneath the lateral skin incision.” Ex. U (Alphatec Surgical Guide) at 5.

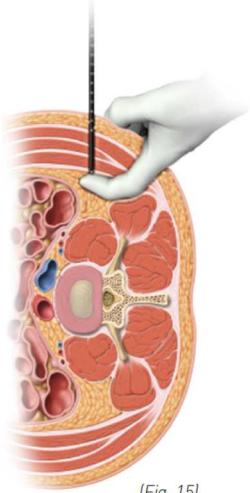
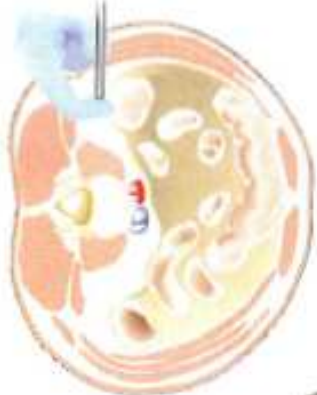
NuVasive XLIF Procedure	Alphatec Lateral Procedure
 <p data-bbox="300 1848 885 1921">Ex. D (2013 NuVasive Surgical Guide) at 9 Fig. 13.</p>	 <p data-bbox="974 1858 1461 1932">Ex. U (Alphatec Surgical Guide) at 5.</p>



1                    **(iv)            XLIF Retroperitoneal Approach**

2            74.    During the XLIF procedure, “[t]he index finger that is inside the  
3 retroperitoneal space is then used to escort the initial Dilator down to the psoas  
4 muscle.” Ex. D (2013 NuVasive Alphatec Surgical Guide) at 9.

5            75.    The Alphatec Surgical Guide instructs its surgeons “[o]nce a safe  
6 pathway has been created, insert the Initial Dilator into the space. Use the index  
7 finger to guide the Dilator to the psoas muscle.” Ex. U (Alphatec Surgical Guide)  
8 at 6.

<b>NuVasive’s XLIF Procedure</b>	<b>Alphatec Lateral Procedure</b>
 <p>Ex. D (2013 NuVasive Surgical Guide) at 9 Fig. 13.</p>	 <p>Ex. U (Alphatec Surgical Guide) at 6.</p>

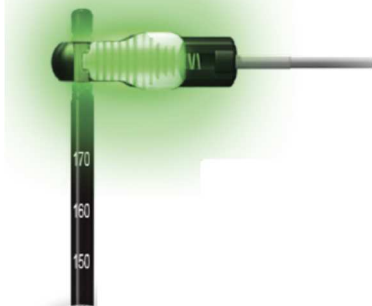
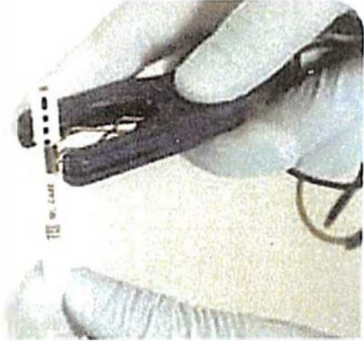
21                    **(v)            XLIF Transpsoas Approach**

22            76.    To traverse the psoas muscle while avoiding damage to the nerves,  
23 NuVasive employs neuromonitoring, such that XLIF Dilators are equipped with  
24 stimulating electrodes at their distal tips, while a stimulating clip is attached at  
25 their proximal ends. E.g., Ex. D (2013 NuVasive Alphatec Surgical Guide) at 10.

26            77.    The Alphatec Surgical Guide instructs surgeons to “[p]lace the  
27 Universal Clip onto exposed silver ring at the proximal end of the Dilator and  
28 connect to the appropriate neuromonitoring platform” and that “[n]euromonitoring



1 may be used to detect the location and proximity of the nerves as the psoas is  
2 traversed.” Ex. U (Alphatec Surgical Guide) at 5-6.

NuVasive’s XLIF Procedure	Alphatec Lateral Procedure
 <p data-bbox="337 787 813 861">Ex. D (2013 NuVasive Surgical Guide) at 11 Fig. 23.</p>	 <p data-bbox="902 814 1466 852">Ex. U (Alphatec Surgical Guide) at 5.</p>

12 78. NuVasive next explains that the initial Dilator is used to split the  
13 fibers of the psoas muscle by advancing it through the psoas while rotating it.  
14 *E.g.*, Ex. E (2007 NuVasive Alphatec Surgical Guide) at 16. A line on the  
15 proximal end of the Dilator indicates the stimulation direction. *E.g.*, *Id.* at 16-17.

16 79. The Alphatec Surgical Guide instructs surgeons to “[c]arefully split  
17 the muscle fibers of the psoas by advancing the Dilator in a clockwise to counter-  
18 clockwise motion.” Ex. U (Alphatec Surgical Guide) at 6. Referring to the  
19 Dilator, the Alphatec Surgical Guide also explains that “Black Lines and Silver  
20 triangle indicate orientation.” *Id.* at 5.

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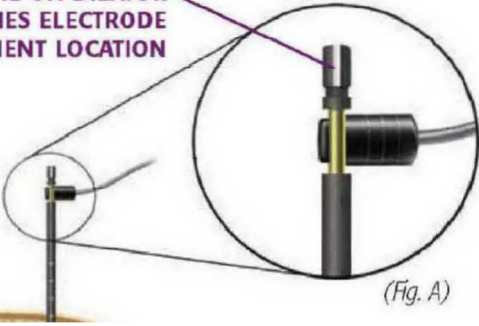
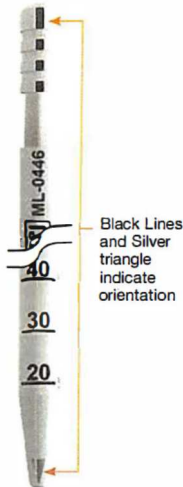
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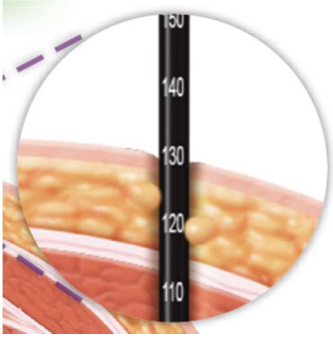
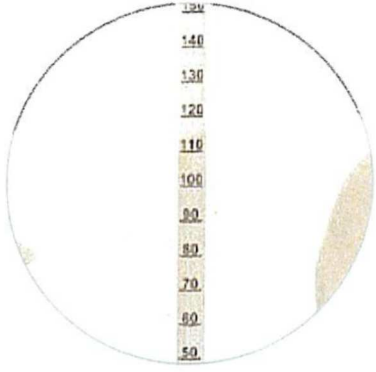
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NuVasive's XLIF Procedure	Alphatec Lateral Procedure
<p data-bbox="321 342 586 426">LINE ON DILATOR IDENTIFIES ELECTRODE PLACEMENT LOCATION</p>  <p data-bbox="797 638 867 667">(Fig. A)</p> <p data-bbox="315 688 899 768">Ex. E (2007 NuVasive Surgical Guide) at 17 Fig. A.</p>	 <p data-bbox="1219 478 1308 569">Black Lines and Silver triangle indicate orientation</p> <p data-bbox="964 768 1455 848">Ex. U (Alphatec Surgical Guide) at 5.</p>

80. NuVasive describes that “[o]nce the initial Dilator is docked on the disc, fluoroscopy should be used to confirm proper positioning.” *E.g.*, Ex. D (2013 NuVasive Surgical Guide) at 11. “A cross-table AP image should confirm the Dilator is in the plane of, and flush with, the disc space []. Following confirmation of the initial Dilator’s position, a K-Wire is introduced about halfway down the disc space to secure the position.” *Id.* “Depth markings on the Dilator indicate the size of the appropriate length Blades to be attached to the MaXcess<sup>®</sup> [] Access Driver [].” *Id.*

81. The Alphatec Surgical Guide instructs surgeons “[o]nce the Initial Dilator has been placed on the disc space, confirm its position with lateral fluoroscopy. Adjust the Dilator’s position so it is flush with the disc space and confirm with AP fluoroscopy. Once the Dilator’s appropriate position is confirmed, introduce the K-wire through the Dilator halfway into the disc space. Take note of the Dilator depth and add 10mm to determine the desired blade length.” Ex. U (Alphatec Surgical Guide) at 7.

NuVasive's XLIF Procedure	Alphatec Lateral Procedure
<p data-bbox="212 199 233 697">1 2 3 4 5 6 7 8</p>  <p data-bbox="344 619 821 697">Ex. D (2013 NuVasive Surgical Guide) at 11 Fig. 23.</p>	 <p data-bbox="919 655 1481 697">Ex. U (Alphatec Surgical Guide) at 7.</p>

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82. During XLIF, successive dilators “are subsequently introduced over the initial Dilator using a twisting motion,” each larger in diameter than the previous. Neuromonitoring “is used with the previous Dilator to determine nerve proximity.” *E.g.*, Ex. D (2013 NuVasive Surgical Guide) at 11.

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83. After instructing surgeons to switch the neuromonitoring clip to the Secondary Dilator, the Alphatec Surgical Guide instructs surgeons to “[i]ntroduce the Secondary Dilator over the Initial Dilator using a clockwise, counter-clockwise motion.” Ex. U (Alphatec Surgical Guide) at 8.

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**(vi) XLIF Retractor Assembly**

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84. Next, NuVasive instructs surgeons to load the retractor blades onto the MaXcess<sup>®</sup> retractor. *E.g.*, Ex. D (2013 NuVasive Surgical Guide) at 13.

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85. Alphatec instructs surgeons to “[l]oad appropriately sized blades onto the Retractor ....” Ex. U (Alphatec Surgical Guide) at 9.

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**(vii) XLIF Access**

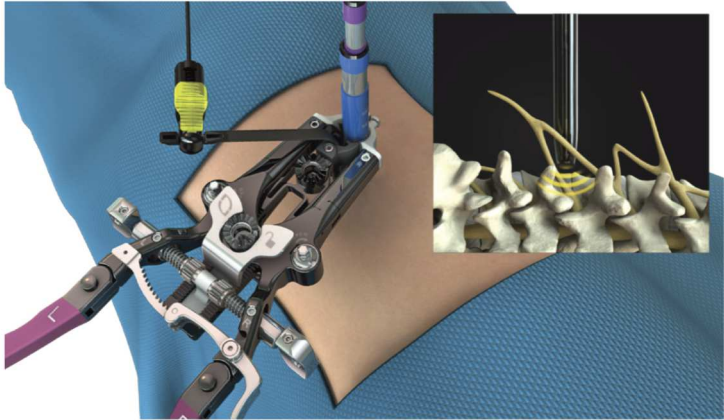

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86. NuVasive then explains that the MaXcess<sup>®</sup> retractor is placed over the largest dilator and docked on the lateral aspect of the disc space. *E.g.* Ex. D (2013 NuVasive Surgical Guide) at 14.

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87. The Alphatec Surgical Guide instructs that the “[r]etractor is then introduced into the space over the Second Dilator using a clockwise, counter-

1 clockwise motion until the Retractor is flush with the disc space.” Ex. U (Alphatec  
2 Surgical Guide) at 10.

<b>NuVasive’s XLIF Procedure</b>	<b>Alphatec Lateral Procedure</b>
 <p data-bbox="337 961 1008 1045">Ex. D (2013 NuVasive Surgical Guide) at 14 Fig. 29.</p>	 <p data-bbox="1089 1041 1471 1119">Ex. U (Alphatec Surgical Guide) at 10.</p>



16 88. NuVasive next explains that the Articulating Arm bedrail attachment  
17 should be secured to the surgical table. *E.g.* Ex. D (2013 NuVasive Surgical  
18 Guide) at 15.

19 89. The Alphatec Surgical Guide instructs surgeons to “[s]ecure the  
20 Table Fixation Arm Bed Rail Clamp to the surgical table ....” Ex. U (Alphatec  
21 Surgical Guide) at 12.

<b>NuVasive’s XLIF Procedure</b>	<b>Alphatec Lateral Procedure</b>
 <p data-bbox="370 1871 849 1950">Ex. D (2013 NuVasive Surgical Guide) at Fig. 35.</p>	 <p data-bbox="959 1860 1451 1940">Ex. U (Alphatec Surgical Guide) at 12.</p>

1 90. NuVasive describes that the Articulating Arm post is attached to the  
 2 Articulating Arm bedrail attachment and adjusted to the desired height. *E.g.* Ex. D  
 3 (2013 NuVasive Surgical Guide) at 15. “The opposite end of the Articulating Arm  
 4 is attached to the Access Driver [of the MaXcess<sup>®</sup> retractor].” *Id.*

5 91. Alphatec instructs surgeons to “[a]ttach the Table Fixation Arm post  
 6 to the Bed Rail Clamp and adjust to the preferred height. The opposite end of the  
 7 Arm will then be attached to the Retractor.” Ex. U (Alphatec Surgical Guide) at  
 8 12.

NuVasive’s XLIF Procedure	Alphatec Lateral Procedure
 <p data-bbox="300 1218 901 1312">Ex. D (2013 NuVasive Surgical Guide) at Fig. 35.</p>	 <p data-bbox="966 1144 1469 1228">Ex. U (Alphatec Surgical Guide) at 12.</p>


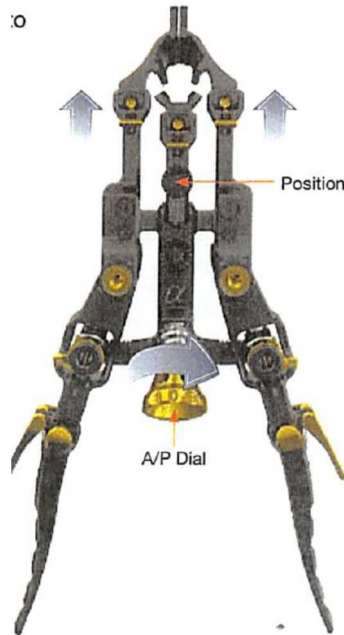
9 92. Next, NuVasive teaches that the Articulating Arm can connect to the  
 10 MaXcess<sup>®</sup> retractor at two attachment points. *E.g.* Ex. D (2013 NuVasive Surgical  
 11 Guide) at 16. One of the attachment points “fixes the C Blade relative to the table  
 12 and results in the L and R Blades moving anteriorly ....”<sup>3</sup> *Id.*

13 93. The Alphatec Surgical Guide states that the “Table Fixation Arm can  
 14 be attached to the Retractor in two locations: **Position 1** holds the posterior blade  
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 27 <sup>3</sup> The “C Blade,” “L Blade, and “R Blade” refer to the posterior, caudal, and  
 28 cranial blades, respectively.


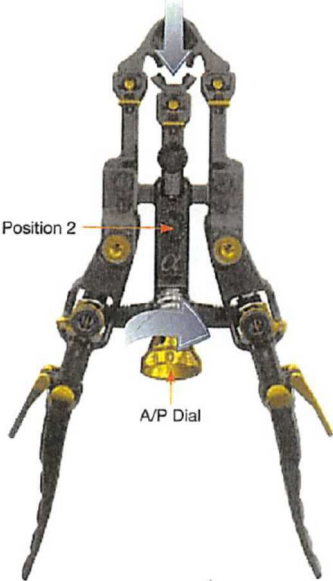
1 stationary while the left and right blades are free to traverse ....” Ex. U (Alphatec  
2 Surgical Guide) at 13 (emphasis in original).

NuVasive’s XLIF Procedure	Alphatec Lateral Procedure
 <p data-bbox="711 1045 763 1066">[Fig. 33]</p> <p data-bbox="344 1075 820 1144">Ex. D (2013 NuVasive Surgical Guide) at 16 Fig. 33.</p>	 <p data-bbox="1279 592 1360 613">Position 1</p> <p data-bbox="1144 865 1209 886">A/P Dial</p> <p data-bbox="945 1066 1437 1144">Ex. U (Alphatec Surgical Guide) at 13.</p>

17 94. In NuVasive’s MaXcess<sup>®</sup> retractor, the second attachment point  
18 “affixes the L and R blades to the table which results in the C Blade moving  
19 posteriorly ....” E.g. Ex. D (2013 NuVasive Surgical Guide) at 16.

20 95. The Alphatec Surgical Guide describes that “**Position 2** holds the left  
21 and right blades stationary while the posterior blade is free to traverse ....” Ex. U  
22 (Alphatec Surgical Guide) at 13 (emphasis in original).

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NuVasive's XLIF Procedure	Alphatec Lateral Procedure
 <p data-bbox="305 877 896 951">Ex. D (2013 NuVasive Surgical Guide) at 16 Fig. 34.</p>	 <p data-bbox="971 877 1464 951">Ex. U (Alphatec Surgical Guide) at 13.</p>



14           96.     During XLIF, once the MaXcess<sup>®</sup> retractor has been secured to the  
15 operating table, the left and right blades of the MaXcess retractor can be expanded  
16 to widen the access space and gain optimal access for the surgeon. *E.g.* Ex. D  
17 (2013 NuVasive Surgical Guide) at 17. A light cable is then placed about halfway  
18 down the retractor blades. *Id.*

19           97.     During the Alphatec Lateral Procedure, the surgeon “[e]xpands the  
20 right and/or left blade to expose the disc space and gain optimal access for the  
21 procedure.” Ex. U (Alphatec Surgical Guide) at 20. In addition, Alphatec explains  
22 that a light cable is “placed halfway down the right or left blade ....” *Id.*

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NuVasive's XLIF Procedure	Alphatec Lateral Procedure
 <p data-bbox="305 640 896 724">Ex. D (2013 NuVasive Surgical Guide) at 17 Fig. 35.</p>	 <p data-bbox="971 682 1464 766">Ex. U (Alphatec Surgical Guide) at 15.</p>



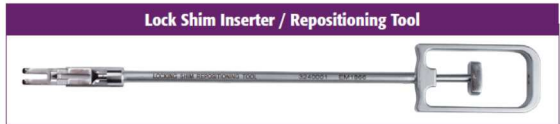
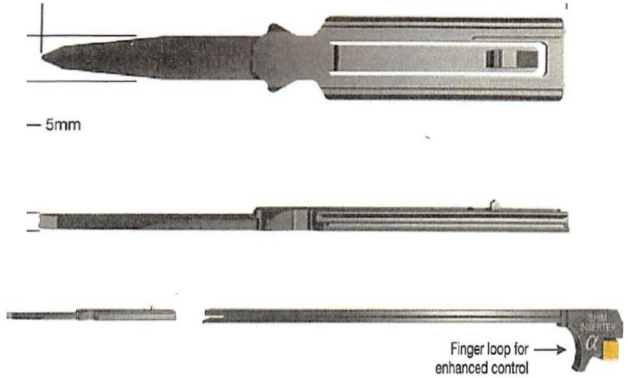
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98. During XLIF, an “Intradiscal Shim may be placed into the disc space to further stabilize the retractor ....” *E.g.* Ex. D (2013 NuVasive Surgical Guide) at 18. NuVasive instructs surgeons “[t]o load the Locking Intradiscal Shim onto the Locking Shim Repositioning Tool.” *Id.* After the Intradiscal Shim is advanced into the disc space, the surgeon presses a button to disengage the Locking Shim Repositioning Tool from the Intradiscal Shim. *Id.*

99. The Alphatec Lateral Procedure utilizes shims. The Alphatec Surgical Guide explains that the Intradiscal Shim can be used to “stabilize the Retractor.” Ex. U (Alphatec Surgical Guide) at 19. The Alphatec Surgical Guide also instructs surgeons to “[l]oad the Intradiscal Shim onto the Shim inserter.” *Id.* After the Intradiscal Shim is advanced into the disc space, the surgeon “[p]ress[es] the gold button at the proximal end of the Inserter to disengage the Shim.” *Id.*

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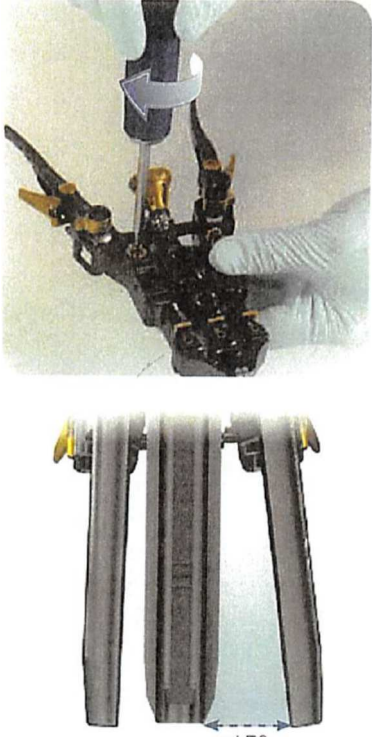


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<p data-bbox="331 193 786 226"><b>NuVasive’s XLIF Procedure</b></p>  <p data-bbox="760 466 841 495">[Fig. 40]</p> <p data-bbox="324 520 802 600">Ex. D (2013 NuVasive Surgical Guide) 18 Fig. 40.</p>  <p data-bbox="311 1003 834 1163">(Screenshot of “XLIF NuVasive HD” video at 0:14, available at <a href="https://www.youtube.com/watch?v=nUHIU6giAHI">https://www.youtube.com/watch?v=nUHIU6giAHI</a>).</p>  <p data-bbox="324 1344 802 1423">Ex. D (2013 NuVasive Surgical Guide) at 34.</p>	<p data-bbox="961 193 1409 226"><b>Alphatec Lateral Procedure</b></p>  <p data-bbox="893 1012 1477 1050">Ex. U (Alphatec Surgical Guide) at 19.</p>

21 100. Next, during XLIF, a Blade Rotation Driver can be used to rotate the  
22 left and/or right blades and expand the distal exposure to the disc space. Ex. D  
23 (2013 NuVasive Surgical Guide) at 20. NuVasive warns that “exposure should  
24 only be as wide as is necessary to prepare the disc space” because “[w]ider  
25 exposure unnecessarily increases psoas muscle trauma.” *Id.*

26 101. The Alphatec Surgical Guide explains that the “Blade Toe Driver”  
27 may be used to increase “Blade Toe,” which expands the distal exposure to the disc  
28 space. Ex. U (Alphatec Surgical Guide) at 16, 20. In addition, the Alphatec

1 Surgical Guide instructs surgeons to “[l]imit expansion of the Retractor to the disc  
2 space as over-expanding the retractor may cause trauma to the psoas.” *Id.* at 20.


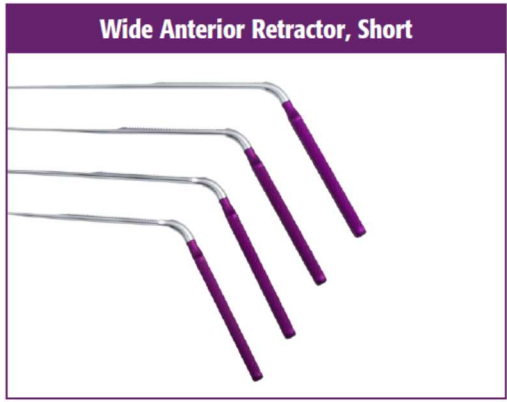
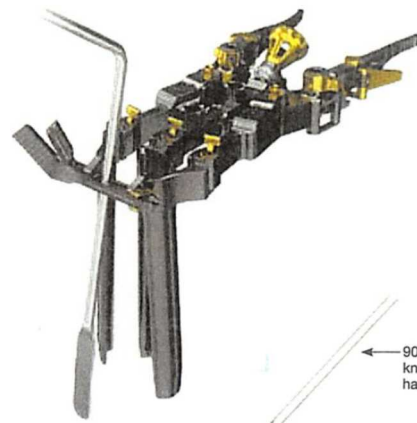

NuVasive’s XLIF Procedure	Alphatec Lateral Procedure
 <p data-bbox="347 1213 824 1287">Ex. D (2013 NuVasive Surgical Guide) at 20 Fig. 49.</p>	 <p data-bbox="943 1205 1435 1287">Ex. U (Alphatec Surgical Guide) at 16.</p>

19 102. Next, during XLIF, a “nerve root retractor” or “anterior retractor” can  
20 be secured to MaXcess<sup>®</sup> using a crossbar. Ex. D (2013 NuVasive Surgical Guide)  
21 at 20. The nerve root or anterior retractor can be used to retract tissue to the  
22 Anterior Longitudinal Ligament (“ALL”). *Id.*

23 103. The Alphatec Surgical Guide states that surgeons can secure a “4th  
24 blade” to the Squadron<sup>®</sup> Lateral Retractor using an “Attachment Cross Bar.” Ex.  
25 U (Alphatec Surgical Guide) at 20. In conjunction with this step, the Alphatec  
26 Surgical Guide instructs surgeons to “[l]ocalize the ALL.” *Id.*

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NuVasive's XLIF Procedure	Alphatec Lateral Procedure
 <p data-bbox="292 556 860 682">(https://www.nuvasive.com/wp-content/uploads/2017/03/xcor2_tg_p_mx4_retractor-.png)</p>  <p data-bbox="332 1134 820 1207">Ex. D (2013 NuVasive Surgical Guide) at 33.</p>	  <p data-bbox="1177 598 1380 651">← 90mm knurled handle</p> <p data-bbox="1177 1060 1380 1092">← Blade is 1mm thick</p> <p data-bbox="933 1123 1461 1197">Ex. U (Alphatec Surgical Guide) at 20.</p>

**(viii) XLIF Annulotomy And Disc Space Preparation**

104. Next, during XLIF, the surgeon uses an Annulotomy Knife to create an annulotomy.<sup>4</sup> *E.g.* Ex. D (2013 NuVasive Surgical Guide) at 22. The size of the annulotomy, as measured from anterior to posterior, depends on the size of the desired implant. *Id.* After the annulotomy, various tools are used to evacuate the disc and prepare the endplates for fusion such as through the use of a Cobb elevator by releasing the contralateral annulus. *Id.*

105. The Alphatec Surgical Guide states “[p]erform an annulotomy to accommodate the selected implant width (anterior to posterior) with the

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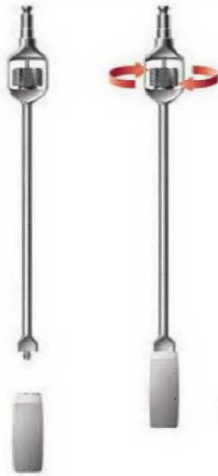

<sup>4</sup> An annulotomy is an incision on an intervertebral disc.

1 Annulotomy Knife. A Cobb Elevator is then passed through the disc space to  
2 release the contralateral annulus.” Ex. U (Alphatec Surgical Guide) at 21. A  
3 variety of additional disc preparation instrumentation is utilized to prepare the disc  
4 space and end plates. *Id.*

5 (ix) **XLIF Implant Sizing**

6 106. During XLIF, after the disc and endplates are prepared for fusion,  
7 “[t]he XLIF Distractor and Paddle Sizes are used to distract the disc space and  
8 gauge the appropriately sized Trial [implant].” *E.g.*, Ex. E (2007 NuVasive  
9 Surgical Guide) at 25. Next, “[t]he selected Trial is placed onto the Inserter and  
10 the thumb-wheel lock is tightened to secure the Trial.” *Id.*



11 107. The Alphatec Surgical Guide instructs surgeons to “[i]ntroduce a  
12 Primary Distractor to distract the disc space and estimate the appropriate implant  
13 height.” Ex. U (Alphatec Surgical Guide) at 22. Next, the Alphatec Surgical  
14 Guide states “[a]ttach the Trial to the Battalion LLIF Inserter by ... rotating the  
15 Inserter 180 degrees.” *Id.* at 23.

NuVasive’s XLIF Procedure	Alphatec Lateral Procedure
 <p data-bbox="350 1738 821 1820">Ex. E (2007 NuVasive Surgical Guide at 25 Fig. 41.</p>	 <p data-bbox="930 1745 1463 1820">Ex. U (Alphatec Surgical Guide) at 23.</p>

1                   (x)           **XLIF Implant Placement**

2           108. NuVasive teaches that after securing the Trial to the Inserter, the Trial  
3 is gently impacted into the disc space to determine the implant size. *E.g.* Ex. D  
4 (2013 NuVasive Surgical Guide) at 23. The surgeon then selects the appropriate  
5 implant and fills the implant with graft material. *Id.* at 25.

6           109. The Alphatec Surgical Guide states “impact the Trial into the disc  
7 space. Confirm correct size and width for the patient anatomy.” Ex. U (Alphatec  
8 Surgical Guide) at 23. The Alphatec Surgical Guide states “[c]hoose the  
9 appropriate implant by width, length, lordosis, and height” and “[p]repack the  
10 implant with the appropriate biologics, allograft or autograft” before inserting into  
11 the disc space. *Id.* at 24.

NuVasive’s XLIF Procedure	Alphatec Lateral Procedure
 <p data-bbox="349 1482 828 1558">Ex. D (2013 NuVasive Surgical Guide) at 25.</p>	 <p data-bbox="951 1472 1442 1547">Ex. U (Alphatec Surgical Guide) at 24.</p>

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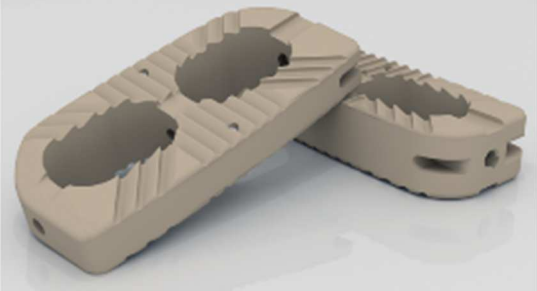
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1 110. Perspective views of NuVasive’s CoRoent<sup>®</sup> XLIF implant and  
2 Alphatec’s Battalion<sup>™</sup> Lateral Spacer are shown below.

<b>NuVasive’s CoRoent<sup>®</sup> XLIF Implant</b>	<b>Alphatec’s Battalion<sup>™</sup> Lateral Spacer</b>
 <p data-bbox="349 779 813 856">Ex. B (XLIF Patient Education Brochure) at 6.</p>	 <p data-bbox="940 764 1463 884">Ex. V (Alphatec’s webpage advertising the Battalion<sup>™</sup> Lateral Spacer)</p>

12 111. NuVasive explains that the CoRoent<sup>®</sup> implants may be inserted with  
13 the TL Graft Containment Slide. Ex. D (2013 NuVasive Surgical Guide) at 27.  
14 The implant is attached to the Inserter, and the TL Graft Containment Slide is  
15 placed over the inserter. *Id.*

16 112. Alphatec explains that the implant may be inserted using Graft  
17 Containment Slides. Ex. U (Alphatec Surgical Guide) at 25. “Graft Containment  
18 Slides may be attached to the proximal end of the inserter and advanced until they  
19 cover the implant.” *Id.*

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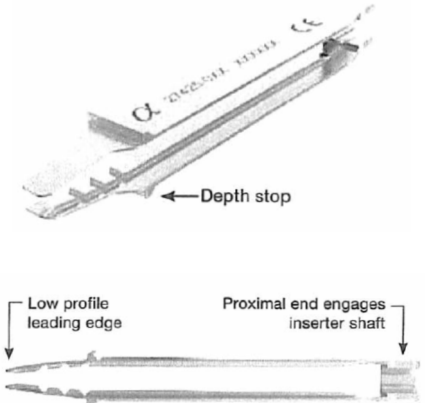
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NuVasive's XLIF Procedure	Alphatec Lateral Procedure
<p data-bbox="211 199 235 703">1 2 3 4 5 6 7 8 9</p>  <p data-bbox="341 625 820 703">Ex. D (2013 NuVasive Surgical Guide) at 27.</p>	 <p data-bbox="941 703 1437 777">Ex. U (Alphatec Surgical Guide) at 25.</p>

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113. As evidenced by the foregoing comparison of the Alphatec Surgical Guide and the NuVasive XLIF Surgical Technique Guide, Alphatec's Battalion™ Lateral Technology was knowingly and willfully copied from NuVasive.

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**F. In October of 2017, A Pioneering Member Of NuVasive's Original XLIF Team And Prolific XLIF Inventor, Mr. Miles, Left His Position As NuVasive's Vice Chairman To Become Alphatec's Executive Chairman**

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114. Mr. Patrick Miles was employed at NuVasive from 2001 to 2017, and actively participated in the research, development, commercialization, and marketing of XLIF since its inception.

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115. Mr. Miles held several titles at NuVasive, including (1) Vice President of Marketing from 2001 to 2004; (2) Senior Vice President of Marketing from 2004 to 2007; (3) Executive Vice President of Product Marketing and Development from 2007 to 2009; (4) President of the Americas from 2010 to 2011; (5) Executive Vice President of Global Products and Services from 2011 to 2015; and (6) President and Chief Operating Officer from 2015 to 2016.

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116. On information and belief, at least as early as January 2016 Alphatec was interested in being acquired by NuVasive to mend Alphatec's financial



1 difficulties. In January 2016, NuVasive was contacted by UBS Financial Services  
2 to explore NuVasive’s interest in acquiring Alphatec. At the time, Mr. Pat Miles  
3 was still working at NuVasive and held the role of President and Chief Operating  
4 Officer, a position which required heavy involvement with the acquisition process.  
5 In addition, because Mr. Miles had been a key leader and visionary of NuVasive’s  
6 product development, his opinions were given substantial weight by NuVasive.

7 117. In assessing the acquisition opportunity, Mr. Miles agreed that  
8 Alphatec’s portfolio was “aged, undifferentiated.”

9 Pat,  
10 Please see the draft of Project Titan summary attached. Please let me know if you have a  
11 minute to chat.  
12 The major assumptions that effect the US business projections are:  
13 ? ~50% erosion in current business based on sales dis-synergies [REDACTED]  
14 ? Aged, undifferentiated portfolio  
15 ? [REDACTED]  
16 Want to capture any additional feedback and confirm your recommendation as PASS.  
17 I am available.  
18 Best,  
19 Gusty

20 This is dead on the mark. No changes and you are being kind with 50% erosion [REDACTED]  
21 [REDACTED]. Thanks for packaging and putting away. Hope you and family are having  
22 good Presidents' Day weekend....PM

23 Pat Miles  
24 President, Chief Operating Officer | NuVasive, Inc. | Speed of Innovation  
25 direct.858.909.1803 | fax.858.909.2003 | mobile.858.243.0021 | email. [pmiles@nuvasive.com](mailto:pmiles@nuvasive.com)  
26 [7475 Lusk Boulevard | San Diego | CA | 92121](http://7475LuskBoulevardSanDiegoCA92121)

27 118. In addition, Mr. Miles viewed the acquisition opportunity as a “waste  
28 of time.”

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1 From: Pat Miles <pmiles@nuvasive.com>  
2 To: Matt Link  
3 Cc:  
4 Subject: Re: CONFIDENTIAL: Project Titan Overview.pptx

5 Gusty sent me the same note...waste of time as far as I am concerned.....

6 Pat Miles  
7 President, Chief Operating Officer | NuVasive, Inc. | Speed of Innovation  
8 direct.858.909.1803 | fax.858.909.2003 | mobile.858.243.0021 | email. [pmiles@nuvasive.com](mailto:pmiles@nuvasive.com)  
9 [7475 Lusk Boulevard](#) | San Diego | CA | 92121

10 119. Mr. Miles advised NuVasive to pass on the opportunity, and  
11 NuVasive did.

12 120. On August 1, 2016, Mr. Miles was appointed to NuVasive's Board.

13 121. In September 2016, Mr. Miles was appointed to the position of  
14 NuVasive Vice Chairman.

15 122. During his tenure at NuVasive, Mr. Miles invented and conceived  
16 multiple aspects of the XLIF procedure. Mr. Miles is a named inventor on at least  
17 50 issued utility patents related to NuVasive's XLIF procedure and systems.

18 123. In each and all of his positions at NuVasive, Mr. Miles received and  
19 had access to strategic and competitive information of NuVasive.

20 124. Mr. Miles is no longer at NuVasive. In October of 2017, Mr. Miles  
21 joined NuVasive's competitor Alphatec as the Executive Chairman. At least as  
22 early as March 2017, Mr. Miles had been in contact with Alphatec without  
23 NuVasive's knowledge and was scheming to vitalize Alphatec to compete against  
24 NuVasive.

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1           **G. With The Undisclosed Assistance Of Mr. Miles As Early As**  
2           **March Of 2017, Alphatec Has Attempted To Re-invent The**  
3           **Company Not Only By Copying NuVasive’s XLIF Technology,**  
4           **But Also By Hiring Other Members Of NuVasive’s Management**  
5           **Team And Multiple NuVasive Employees**

6           125. Mr. Miles departure to join Alphatec in October 2017 made him one  
7 of many NuVasive employees, inventors and upper level management that were  
8 specifically targeted by Alphatec.

9           126. On information and belief, upon the September 2016 closing of the  
10 Globus Transaction, Alphatec began to make changes to its leadership team  
11 targeting NuVasive employees, inventors and upper level management.

12           127. On information and belief, beginning in September 2016, Alphatec  
13 recruited and hired away the following NuVasive employees: (1) Alphatec’s  
14 Executive Chairman of the Board Patrick Miles; (2) Alphatec’s Executive Vice  
15 President of Strategic Marketing and Product Development Brian Snider;  
16 (3) Alphatec’s Vice President Operations Mike Dendinger; (4) Alphatec’s Vice  
17 President Development Posterior Scott Lish; and (5) Alphatec Board member  
18 Quentin Blackford.

19           128. In connection with Alphatec’s March 2017 hiring of ex-NuVasive  
20 employee Brian Snider, Alphatec publicly stated: “Mr. Snider spent nine years at  
21 NuVasive, Inc. where he ... had substantial responsibility over the anterior column  
22 business, including XLIF®... We look forward to leveraging [Mr. Snider’s] energy  
23 and expertise, as we launch our new products, including Battalion Lateral.” Ex. W  
24 (March 24, 2017 Alphatec Press Release). On information and belief, upon hiring  
25 Mr. Snider, Alphatec awarded Mr. Snider an inducement award of 75,000  
26 restricted stock units and an option to purchase 75,000 shares of common stock.

27 *Id.*

1           129. According to Alphatec’s public statements, Alphatec plans to expand  
2 its surgeon customer base and drive growth through launch of the Battalion™  
3 Lateral products. Ex. X (March 23, 2017 Alphatec Press Release). In connection  
4 with a private placement, Alphatec announced “[w]e believe the additional capital  
5 [from the private placement] will allow us to execute on our plans to expand our  
6 surgeon customer base, drive growth through the launch our new products ...  
7 Battalion™ Lateral ....” *Id.*

8           130. On information and belief, in March 2017, Alphatec completed a  
9 private placement of its securities, generating \$18.9 million in proceeds. Ex. Q  
10 (Alphatec Holdings Form 10-K Annual Report 2016) at 1. On information and  
11 belief, one of the March 2017 investors was Mr. Miles, who was still employed by  
12 NuVasive at the time. Upon information and belief, in or around March of 2017,  
13 Mr. Miles executed a securities purchase agreement to purchase \$500,000 of  
14 Alphatec stock without informing NuVasive.

15           131. According to Alphatec’s public statements, in April of 2017, Alphatec  
16 initiated a limited release of the Battalion™ Lateral System with the Squadron™  
17 Lateral Retractor, which is specifically designed for use in a lateral, transpsoas  
18 procedure. Ex. N (Alphatec April 7, 2017 press release). According to Alphatec’s  
19 public statements, at that time , Alphatec was “well positioned to begin to compete  
20 in the \$500M U.S. Lateral market.” *Id.*

21           132. On information and belief, a few months later in June 2017, Mr.  
22 Miles sold over \$1 million worth of NuVasive stock. On information and belief,  
23 when Mr. Miles joined Alphatec in October 2017, Mr. Miles agreed to purchase  
24 more shares of Alphatec stock worth nearly \$3 million. Ex. Y (Alphatec Holdings  
25 Schedule 13D (December 28, 2017)) at Item 3. On information and belief, taking  
26 into account Mr. Miles’ previous purchase of \$500,000 of Alphatec stock, Mr.  
27 Miles invested approximately \$3.5 million into Alphatec. On information and  
28 belief, Mr. Miles also received a five-year warrant to purchase up to an additional

1 1.3 million shares of common stock. Ex. Z (October 2, 2017 Alphatec Press  
2 Release) at 2.

3 133. On information and belief, as a material inducement to joining  
4 Alphatec in or around the time that Mr. Miles joined Alphatec, Alphatec awarded  
5 Mr. Miles 1,000,000 restricted stock units. Ex. AA (Alphatec Holdings Form 8-K  
6 (October 2, 2017)) at Item 5.02. On information and belief, due to the size of the  
7 1,000,000 restricted stock grant to Mr. Miles, Alphatec amended its 2016  
8 Employment Inducement Award Plan to increase the shares reserved for issuance  
9 by 1 million shares. *Id.* On information and belief, that amendment was made  
10 effective on October 2, 2017, the same day as Mr. Miles' appointment as  
11 Executive Chairman of Alphatec became effective. *Id.*

12 134. On information and belief, Alphatec has and is executing plans to  
13 increase Alphatec's stock prices and intends to erode NuVasive's business using  
14 the Battalion™ Lateral System to infringe NuVasive's patents. On information  
15 and belief, Alphatec's plans include recruiting former NuVasive employees and  
16 upper management, including Mr. Miles and other inventors of the NuVasive  
17 Patents.

18 **H. In Light of The Foregoing And Mr. Miles Significant Investments**  
19 **In And Leadership At Alphatec, There Has Been And Continues**  
20 **to Be A Privity Relationship Between Alphatec And Mr. Miles**

21 135. On information and belief, as of December 28, 2017, the aggregate  
22 number of Alphatec shares owned by Mr. Miles was approximately 1.8 million,  
23 representing 9.1% of Alphatec's common stock. Ex. Y (Alphatec Holdings  
24 Schedule 13D (December 28, 2017)) at Item 5. In addition, on information and  
25 belief, Mr. Miles beneficially owns more shares of Alphatec's common stock by  
26 virtue of his role as the manager of MOM, LLC. *Id.* at Item 2. Accordingly, on  
27 information and belief, as of December 28, 2017, MOM, LLC owned 500,000  
28 shares of Alphatec's stock, representing 2.5% of Alphatec's common stock. *Id.* at

1 Item 5. On information and belief, Mr. Miles and MOM, LLC collectively owned  
2 11.6% of Alphatec's common stock as of December 28, 2017. *Id.*

3 136. As the Executive Chairman, Mr. Miles is more than a mere employee.  
4 Mr. Miles maintains a key leadership role. According to Alphatec's public  
5 statements, as the Executive Chairman of Alphatec, Mr. Miles' job responsibilities  
6 are to "lead the organization" and "be fully engaged, focusing on further defining  
7 and implementing Alphatec's strategic initiatives, expanding and fortifying  
8 [Alphatec's] relationships with surgeon customers, and leading Alphatec's new  
9 technology development." Ex. Z (October 2, 2017 Alphatec press release) at 1.  
10 According to Alphatec's public statements, Mr. Miles is "position[ed]  
11 extraordinarily well to lead [Alphatec]." *Id.* Alphatec has also stated that "[Mr.  
12 Miles'] influence on daily operations, product development decisions, and surgeon  
13 engagement will accelerate the business transformation that [Alphatec is] driving."  
14 *Id.*

15 137. Mr. Miles was hired by Alphatec, at least in part, to expand  
16 Alphatec's market share by using the Battalion™ Lateral System. In recruiting  
17 Mr. Miles as well as former NuVasive CFO Quentin Blackford, Alphatec's CEO  
18 stated "Pat and Quentin have decades of industry experience and well-deserved  
19 reputations that speak for themselves." *Id.* Alphatec's CEO continued, Mr. Miles  
20 "is a proven driver of market-share expansion." *Id.* Consistent with these  
21 statements, Mr. Miles announced that he "look[s] forward to driving ... market  
22 share expansion." *Id.*

23 138. Upon Mr. Miles recruitment, Alphatec reported "continued execution  
24 of our vision to reposition Alphatec as the most respected, fastest-growing  
25 company in U.S. spine" based on Mr. Miles' 17-year tenure at NuVasive. *Id.* To  
26 achieve this vision, Alphatec is investing in a "vital few" initiatives, including  
27 "[d]riving new product development." Ex. C (Excerpt from Alphatec Holdings  
28 Amendment No. 1 to Form S-3 (November 14, 2017)) at 5. Pursuant to this

1 “vital” initiative, Alphatec plans to focus on “platforms that address sizable new  
2 market opportunities: 1) lateral surgery ....” *Id.*

3 **I. Alphatec Has Been, And Intends to Continue To Infringe On**  
4 **NuVasive’s Valuable Patented Technology**

5 139. As discussed above, Alphatec has been and intends to continue to  
6 trade on NuVasive’s valuable patented technology in the industry that NuVasive  
7 created as a last ditch effort to save a business that has struggled and failed since  
8 its inception. Accordingly, NuVasive now seeks relief from the Court for this  
9 egregious, tortious behavior.

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1 **IV. FIRST CAUSE OF ACTION — Infringement of U.S. Patent**  
2 **No. 7,819,801**

3 140. NuVasive repeats and realleges the allegations of paragraphs 1  
4 through 139 in their entirety.

5 141. On October 26, 2010, the United States Patent and Trademark Office  
6 duly and legally issued U.S. Patent No. 7,819,801 (“the ’801 patent”), entitled  
7 “Surgical Access System and Related Methods,” to Patrick Miles, Scot Martinelli,  
8 Eric Finley, James Gharib, Allen Farquhar, Norbert Kaula, Jeffrey Blewett and  
9 Goretta Medeiros (legal representative). A true and correct copy of the ’801 patent  
10 is attached hereto as Exhibit AB.

11 142. At all relevant times, NuVasive is and has been the owner, by valid  
12 assignment, of all right, title, and interest in and to the ’801 Patent.

13 143. On information and belief, Alphatec had knowledge of the ’801 patent  
14 prior to the filing of this Complaint.

15 144. On information and belief, Alphatec has been monitoring and  
16 continues to monitor NuVasive’s patent portfolio, including patents and  
17 applications that are directed to lateral, transposas spinal procedures, systems, and  
18 devices, such as the ’801 patent.

19 145. On information and belief, Alphatec had knowledge of the ’801 patent  
20 at least as early as August 5, 2015, as evidenced by Alphatec’s submission of an  
21 Information Disclosure Statement identifying the ’801 patent to the U.S. Patent and  
22 Trademark Office, which occurred on August 5, 2015 in connection with  
23 prosecution of Alphatec’s U.S. Patent No. 9,693,762.

24 146. As an independent basis for Alphatec’s knowledge of the ’801 patent,  
25 on information and belief, Alphatec gained knowledge of the ’801 patent through  
26 its privity relationship with Mr. Miles, which formed at least as early as October 2,  
27 2017.

1           147.     Mr. Miles is a named inventor of the '801 patent and therefore had  
2 and continues to have knowledge of the '801 patent.

3           148.     A privity relationship between Alphatec and Mr. Miles formed at  
4 least as early as October 2, 2017, when Mr. Miles joined Alphatec as its Executive  
5 Chairman.

6           149.     Alphatec continues to be in privity with Mr. Miles.

7           150.     Upon the formation of Alphatec's privity relationship with Mr.  
8 Miles, Alphatec was imputed with, and continues to be imputed with, Mr. Miles'  
9 knowledge of the '801 patent.

10          151.     Alphatec has and continues to avail itself of Mr. Miles' knowledge  
11 and assistance to infringe the '801 patent, which Mr. Miles had assigned to  
12 NuVasive.

13          152.     At the very latest, Alphatec has knowledge of the '801 patent as of the  
14 filing of this Complaint.

15          153.     In violation of 35 U.S.C. § 271(a), Alphatec has and continues to  
16 directly infringe one or more claims of the '801 patent.

17          154.     In particular, and without limitation, Alphatec directly infringes the  
18 '801 patent by making, using, selling, offering for sale, and/or importing into the  
19 United States products and systems including, but not limited to the Initial Dilator,  
20 the Secondary Dilator, the Squadron™ Lateral Retractor Body, the Squadron™  
21 Lateral Retractor Right Blade, the Squadron™ Lateral Retractor Left Blade, the  
22 Squadron™ Lateral Retractor Posterior Blade, the Squadron™ Lateral Retractor  
23 Right Handle Arm, the Squadron™ Lateral Retractor Left Handle Arm, and the  
24 Intradiscal Shim (collectively, "the '801 Infringing System"), which are  
25 components of the Battalion™ Lateral System, without the permission of  
26 NuVasive.

27          155.     The '801 Infringing System infringes at least claim 1 of the '801  
28 patent.



1 156. As explained in the Alphatec Surgical Guide, the '801 Infringing  
2 System is a system for accessing a surgical target site.

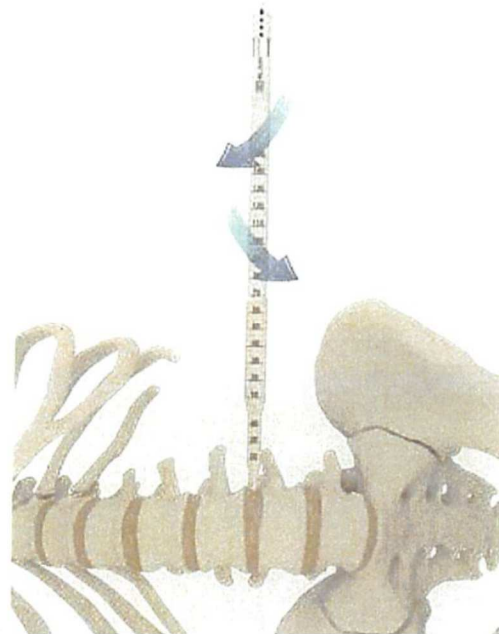
3 157. The Alphatec Surgical Guide discloses a dilator system comprising a  
4 plurality of sequential dilators deliverable along a lateral, transpsoas path to a  
5 targeted spine site to create a distraction corridor (Ex. U at 6-8):

6 Introduce the Secondary Dilator over  
7 the Initial Dilator using a clockwise,  
8 counter-clockwise motion. Advance the  
9 Second Dilator until it is flush with the  
10 disc space.

#### 11 TRAVERSING THE PSOAS

12 Carefully split the muscle fibers of the  
13 psoas by advancing the Dilator in a  
14 clockwise to counter-clockwise motion.  
15 Neuromonitoring may be used to  
16 detect the location and proximity of the  
17 nerves as the psoas is traversed.

18 Adjust the Dilator's position so it is  
19 flush with the disc space and confirm  
20 with AP fluoroscopy.



21 158. The Alphatec Surgical Guide discloses a Squadron™ Lateral  
22 Retractor, which contains a handle assembly which includes a first pivotable arm  
23 member and a second pivotable arm member that pivots relative to the first  
24 pivotable arm member, in response to manual adjustment of a component of the  
25 handle assembly (Ex. U at 1, 15):

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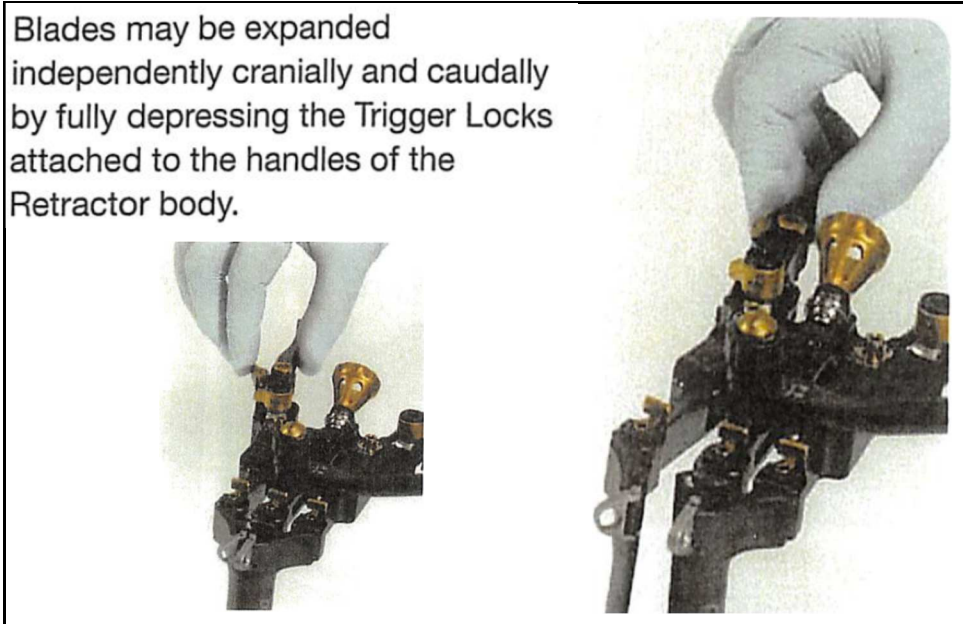
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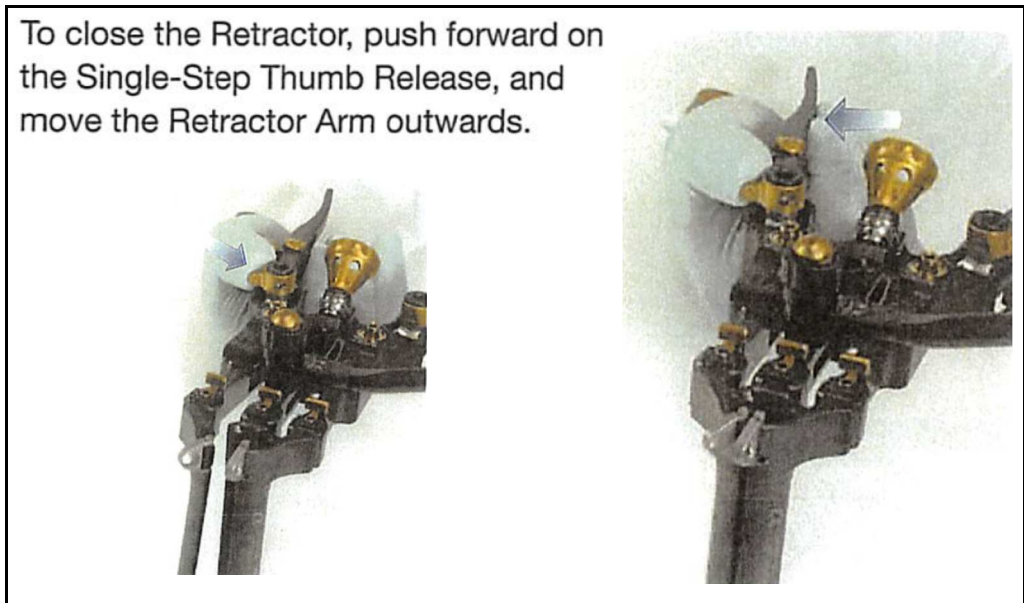
Blades may be expanded independently cranially and caudally by fully depressing the Trigger Locks attached to the handles of the Retractor body.



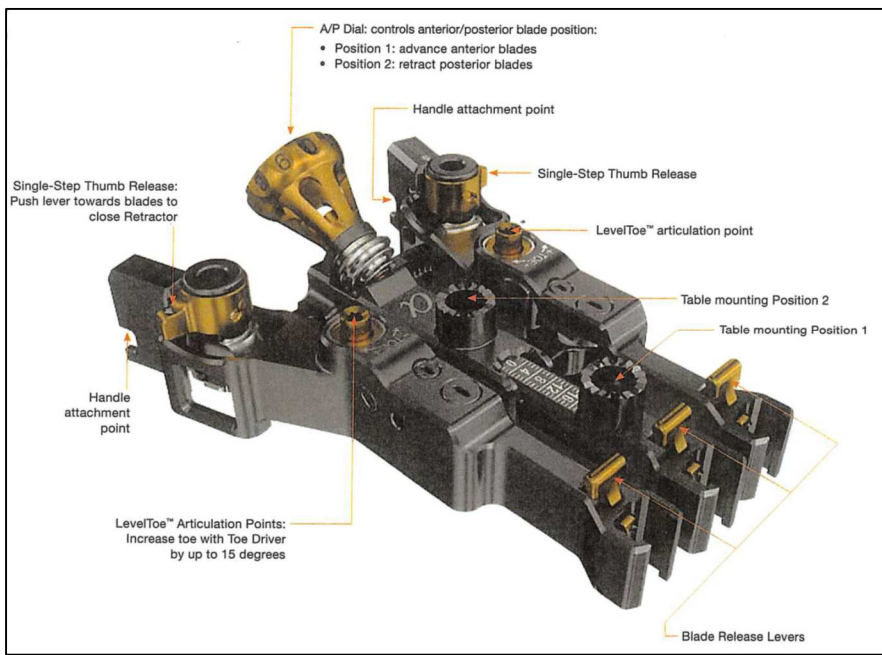
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To close the Retractor, push forward on the Single-Step Thumb Release, and move the Retractor Arm outwards.

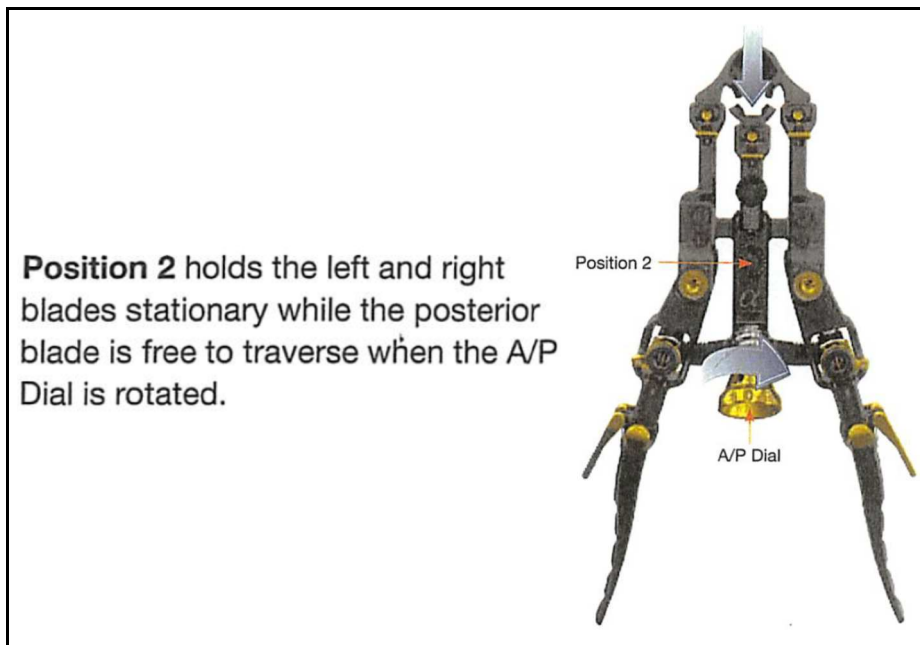
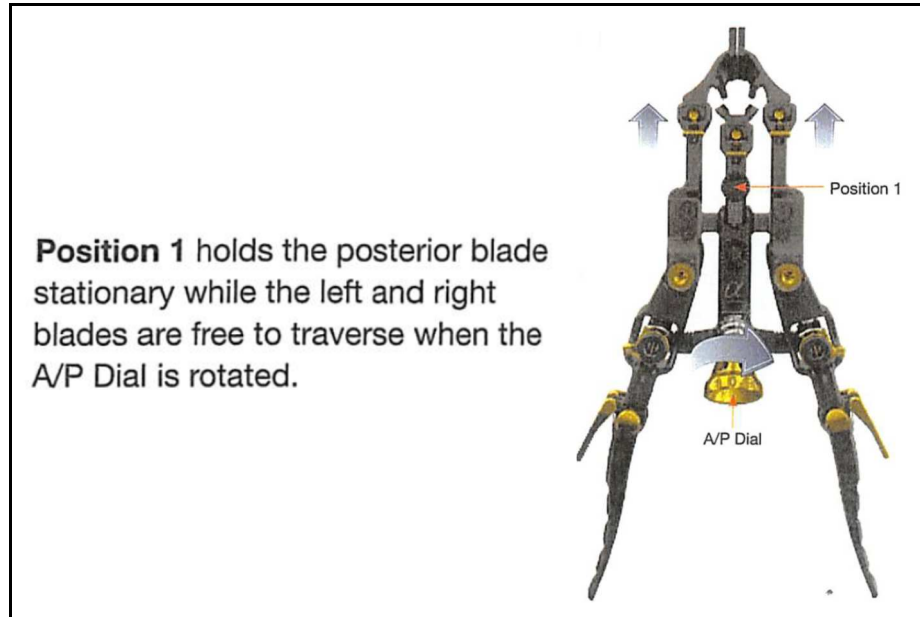


159. The Alphatec Surgical Guide discloses a translating member that can move longitudinally relative to the first and second arm members (Ex. U at 13, 17):



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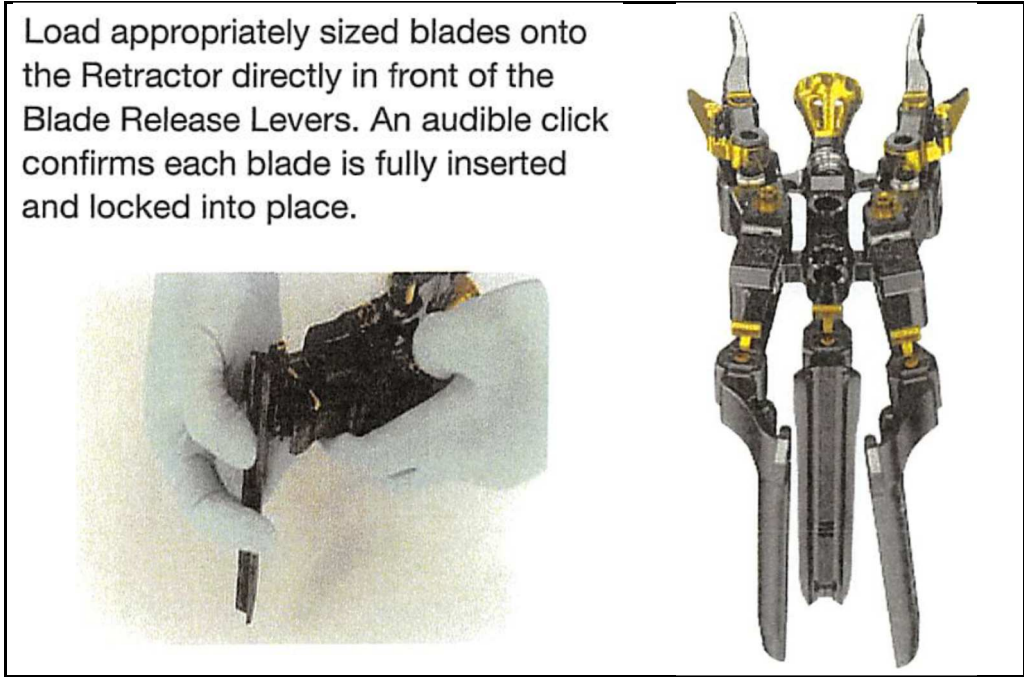
1 The Table Fixation Arm can be attached to  
2 the Retractor in two locations:



25 160. The Alphatec Surgical Guide discloses that the Squadron™ Lateral  
26 Retractor includes a first retractor blade having a generally concave inner-facing  
27 surface and rigidly coupled to the first pivotable arm member, a second retractor  
28 blade having a generally concave inner-facing surface and rigidly coupled to the



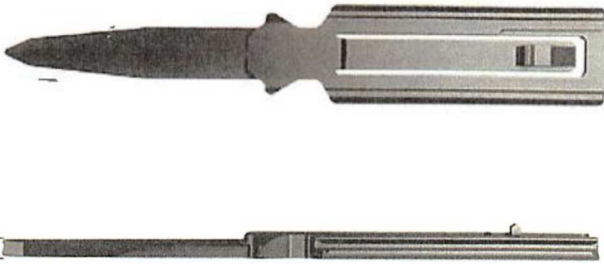
1 second pivotable arm member, and a third retractor blade rigidly coupled to the  
2 translating member prior to the introduction toward the targeted spinal site (Ex. U  
3 at 9, 14, 29):



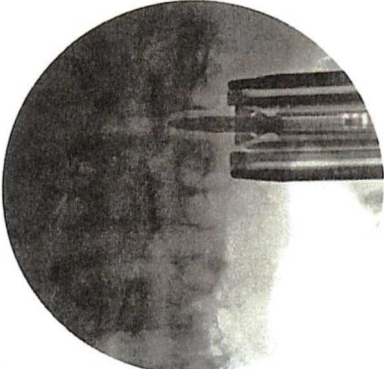
161. The Alphatec Surgical Guide discloses an Intradiscal Shim element  
that releasably mounts to the third retractor blade such that a maximum length of

1 the Intradiscal Shim element extends generally parallel to the maximum length of  
2 the third retractor blade and a distal tip portion of the Intradiscal Shim element  
3 extends distally of the distal end of the third retractor blade. The Intradiscal Shim  
4 element engages with a groove defined by the third retractor blade to penetrate into  
5 the spinal disc at a targeted spinal site when the Intradiscal Shim element is  
6 mounted to the third retractor blade (Ex. U at19):

7 To stabilize the Retractor, place the  
8 Intradiscal Shim through the center  
9 blade of the Retractor ensuring that  
10 the tabs on either side of the Inserter  
11 engage into the tracks on the inside  
12 of the blade. Advance the Shim until it  
13 engages into the disc space and locks  
14 at the bottom of the blade. Press the  
15 gold button at the proximal end of the  
16 Inserter to disengage the Shim.

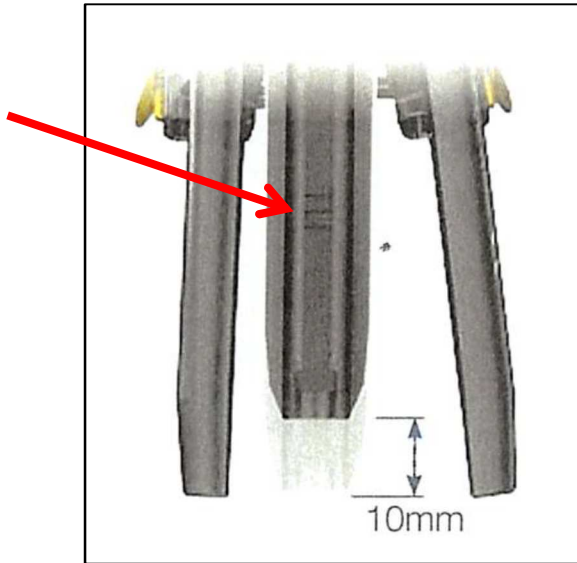


18 Confirm under AP and lateral  
19 fluoroscopy that the Shim is within the  
20 disc space.

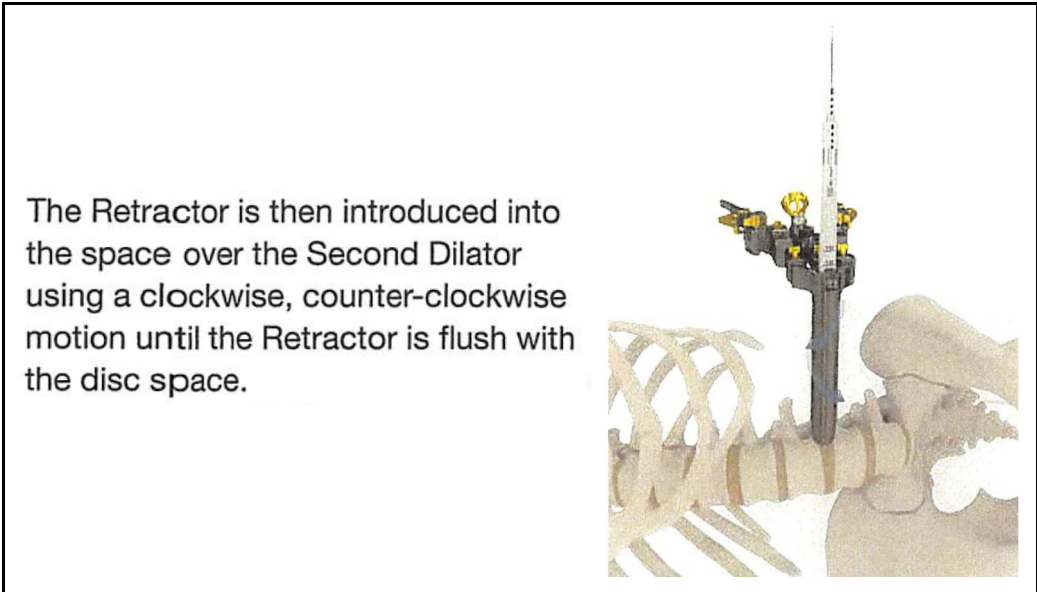


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162. The Alphatec Surgical Guide discloses that the Squadron™ Lateral Retractor includes a handle assembly which is configured to simultaneously introduce the first, second, and third retractor blades along a lateral, transpoas path in a closed position while the generally concave inner-facing surfaces of the first and second retractor blades engage with the outermost dilator (Ex. U at 10):



163. The Alphatec Surgical Guide discloses that the first and second retractor blades are thereafter opened by pivoting the first and second pivotable arm members relative to one another to create an operative corridor to the surgical target site (Ex. U at 1, 20):

1  
2 **7** DISC SPACE ACCESS

3  
4 Expand the right and/or left blade  
5 to expose the disc space and gain  
6 optimal access for the procedure.

7  
8 *See supra*, ¶ 158 (showing that  
9 pivoting of each pivotable arm  
members each expands the  
right or left blade)



10 164. Alphatec is, thus, liable for direct infringement of the '801 patent  
11 pursuant to 35 U.S.C. § 271(a).

12 165. In violation of 35 U.S.C. § 271(b) Alphatec has and continues to  
13 induce infringement of at least claim 1 of the '801 patent.

14 166. With knowledge of the '801 patent, Alphatec has and continues to  
15 induce jointly and separately the direct infringement of at least claim 1 of the '801  
16 patent by others, such as surgeons, by actively encouraging them to use at least the  
17 '801 Infringing System in an infringing manner, with specific intent to induce such  
18 actions knowing, or being willfully blind to, the fact that the induced actions  
19 constitute infringement of at least claim 1 of the '801 patent.

20 167. On information and belief, Alphatec had and continues to have  
21 specific intent to induce surgeons to use the '801 Infringing System to perform  
22 Alphatec's Lateral Procedure, knowing, or being willfully blind to, the fact that the  
23 induced actions constitute infringement of at least claim 1 of the '801 patent.

24 168. The Alphatec Surgical Guide provides specific instructions teaching  
25 surgeons how to use the '801 Infringing System during the Alphatec Lateral  
26 Procedure.



1           169. The Alphatec Surgical Guide describes the '801 Infringing System  
2 with detailed information about its features, which match each and every element  
3 of at least claim 1 of the '801 patent, as outlined above.

4           170. Alphatec has and continues to actively encourage others, such as  
5 surgeons, to directly infringe at least claim 1 of the '801 patent.

6           171. Alphatec's affirmative acts of active encouragement include, among  
7 other things: (1) publishing surgical techniques, conducting organized surgical  
8 training courses, and engaging in other marketing activities, to promote the  
9 Battalion™ Lateral System which includes the '801 Infringing System; (2)  
10 teaching, instructing, and training surgeons how to use the '801 Infringing System  
11 for the Alphatec Lateral Procedure; and (3) supplying one or more components of  
12 the '801 Infringing System, the components including, but not limited to, the Initial  
13 Dilator, the Secondary Dilator, the Squadron™ Lateral Retractor Body, the  
14 Squadron™ Lateral Retractor Right Blade, the Squadron™ Lateral Retractor Left  
15 Blade, the Squadron™ Lateral Retractor Posterior Blade, the Squadron™ Lateral  
16 Retractor Right Handle Arm, the Squadron™ Lateral Retractor Left Handle Arm  
17 and the Intradiscal Shim (individually, a "'801 Infringing Component").

18           172. On information and belief, following Alphatec's active  
19 encouragement, surgeons have used and continue to use the '801 Infringing  
20 System in performing the Alphatec Lateral Procedure, and thus have directly  
21 infringed and continue to directly infringe at least claim 1 of the '801 patent.

22           173. Alphatec is, thus, liable for induced infringement of the '801 patent  
23 pursuant to 35 U.S.C. § 271(b).

24           174. In violation of 35 U.S.C. § 271(c) Alphatec has and continues to  
25 contribute to the direct infringement by others, such as surgeons, of at least claim 1  
26 of the '801 patent.

27           175. Alphatec has and continues to offer for sell, sell, and/or import one  
28 or more the '801 Infringing Components which constitute a material part of at least

1 claim 1 of the '801 patent and lack any substantial non-infringing use, knowing, or  
2 being willfully blind to, the fact that those components are especially made or  
3 adapted for use in infringing at least claim 1 of the '801 patent.

4 176. On information and belief, following Alphatec's contributory actions,  
5 others, such as surgeons, have used and continue to use the '801 Infringing System  
6 for the Alphatec Lateral Procedure and thus have directly infringed and continue to  
7 directly infringe at least claim 1 of the '801 patent.

8 177. On information and belief, Alphatec knew and does now know, or  
9 was willfully blind to, the fact that use of the '801 Infringing System by surgeons  
10 for the Alphatec Lateral Procedure infringes at least claim 1 of the '801 patent, as  
11 outlined above.

12 178. On information and belief, Alphatec purposefully designed each of the  
13 '801 Infringing Components as part of the '801 Infringing System for use in  
14 performing the Alphatec Lateral Procedure and for no other purpose. For example,  
15 the Right, Left and Posterior Blades of the Squadron™ Lateral Retractor are sized  
16 to match the distance from the side of a patient to the lumbar spine of the patient,  
17 and the size of the Blades is determined using the depth markings on the Initial  
18 Dilator. As another example, the Intradiscal Shim and the Posterior Blade are  
19 especially designed to engage with each other at a groove on the Posterior Blade.

20 179. On information and belief, Alphatec thus knew and does now know  
21 the '801 Infringing Components are each especially made or adapted for use in  
22 infringing the at least claim 1 of the '801 patent.

23 180. On information and belief, Alphatec thus knew and does now know  
24 the '801 Infringing Components are each not a staple article or commodity of  
25 commerce suitable for substantial non-infringing use.

26 181. On information and belief, Alphatec thus knew and does now know  
27 that the '801 Infringing Components are each essential to and enable the use of the  
28

1 '801 Infringing System for performing the Alphatec Lateral Procedure by  
2 surgeons.

3 182. Each of the '801 Infringing Components embodies at least a majority  
4 of the limitations of at least claim 1 of the '801 patent.

5 183. Alphatec is, thus, liable for contributory infringement of the '801  
6 patent pursuant to 35 U.S.C. § 271(c).

7 184. In violation of 35 U.S.C. § 271(f)(1), on information and belief,  
8 Alphatec has been and continues to supply or cause to be supplied in or from the  
9 United States all or a substantial portion of the components of the '801 Infringing  
10 System including, but not limited to, one or more of the '801 Infringing  
11 Components, where such components are uncombined in whole or in part, in such  
12 a manner to actively induce the combination of such components outside of the  
13 United States in a manner that practices at least claim 1 of the '801 patent.

14 185. Alphatec is, thus, liable for infringement of the '801 patent pursuant  
15 to 35 U.S.C. § 271(f)(1).

16 186. In violation of 35 U.S.C. § 271(f)(2), on information and belief,  
17 Alphatec has been and continues to supply or cause to be supplied in or from the  
18 United States one or more of the '801 Infringing Components, where such  
19 component is uncombined in whole or part, intending that such component will be  
20 combined outside of the United States in a manner that practices at least claim 1 of  
21 the '801 patent.

22 187. On information and belief, Alphatec knew and does now know, or  
23 was willfully blind to, the fact that the '801 Infringing Components are each  
24 especially made or adapted for use in the '801 Infringing System and are each not a  
25 staple article or commodity of commerce suitable for substantial non-infringing  
26 use.

27 188. Alphatec is, thus, liable for infringement of the '801 patent pursuant  
28 to 35 U.S.C. § 271(f)(2).

1 189. Unless enjoined by this Court, Alphatec will continue to infringe one  
2 or more claims of the '801 patent, and NuVasive will continue to suffer irreparable  
3 harm for which there is no adequate remedy at law. Accordingly, NuVasive is  
4 entitled to preliminary and permanent injunctive relief against such infringement  
5 pursuant to 35 U.S.C. § 283.

6 190. As a result of Alphatec's infringement of one or more claims of the  
7 '801 patent, NuVasive has been and continues to be injured in its business and  
8 property rights, and is entitled to recover damages for such injuries pursuant to 35  
9 U.S.C. § 284 in an amount to be determined at trial.

10 191. On information and belief, at all times that infringement has occurred  
11 or will occur, Alphatec had and has actual and/or constructive knowledge of the  
12 '801 patent.

13 192. On information and belief, Alphatec's infringement of one or more  
14 claims of the '801 patent is and has been willful, deliberate, and egregious.  
15 Accordingly, NuVasive is entitled to enhanced damages pursuant to 35 U.S.C. §  
16 284 and to an award of attorney's fees and costs incurred in prosecuting this action  
17 pursuant to 35 U.S.C. § 285.

18 193. Alphatec is precluded from challenging the validity of the '801 patent,  
19 including particularly under the doctrine of equitable estoppel.

20 194. Alphatec is in privity with Mr. Miles, who is an assignor and inventor  
21 of the '801 patent, as outlined above.

22 195. On information and belief, Alphatec has and continues to avail itself  
23 of Mr. Miles' knowledge and assistance to infringe the '801 patent.

24 196. Mr. Miles swore to the U.S. Patent Office that he is an inventor of the  
25 '801 patent.

26 197. On April 11, 2005, Mr. Miles signed a declaration, swearing that he  
27 believes he is an inventor on U.S. Patent Application No. 10/789,797 ("the '797  
28 application"), which issued as the '801 patent. Ex. AC at 1-2.

1            198. Mr. Miles' inventor declaration (Ex. AC) was filed on May 16, 2005  
2 as an official declaration of record for the '801 patent.

3            199. For good and valuable consideration, Mr. Miles assigned NuVasive  
4 all right, title and interest to the '801 patent.

5 **V. SECOND CAUSE OF ACTION — Infringement of U.S. Patent**  
6 **No. 8,355,780**

7            200. NuVasive repeats and realleges the allegations of paragraphs 1  
8 through 199 in their entirety.

9            201. On January 15, 2013, the United States Patent and Trademark Office  
10 duly and legally issued U.S. Patent No. 8,355,780 ("the '780 patent"), entitled  
11 "Surgical Access System and Related Methods," to Patrick Miles, Scot Martinelli  
12 and Eric Finley. A true and correct copy of the '780 patent is attached hereto as  
13 Exhibit AD.

14            202. At all relevant times, NuVasive is and has been the owner, by valid  
15 assignment, of all right, title, and interest in and to the '780 patent.

16            203. On information and belief, Alphatec had knowledge of the '780 patent  
17 prior to the filing of this Complaint.

18            204. On information and belief, Alphatec has been monitoring and  
19 continues to monitor NuVasive's patent portfolio, including patents and  
20 applications that are directed to lateral, transposas spinal procedures, systems, and  
21 devices, such as the '780 patent.

22            205. On information and belief, Alphatec gained knowledge of the '780  
23 patent through its privity relationship with Mr. Miles, which formed at least as  
24 early as October 2, 2017.

25            206. Mr. Miles is a named inventor of the '780 patent and therefore has and  
26 continues to have knowledge of the '780 patent.

1           207. A privity relationship between Alphatec and Mr. Miles formed at least  
2 as early as October 2, 2017, when Mr. Miles joined Alphatec as its Executive  
3 Chairman.

4           208. Alphatec continues to be in privity with Mr. Miles.

5           209. Upon the formation of Alphatec's privity relationship with Mr. Miles,  
6 Alphatec was imputed with, and continues to be imputed with, Mr. Miles'  
7 knowledge of the '780 patent.

8           210. Alphatec has and continues to avail itself of Mr. Miles' knowledge  
9 and assistance to infringe the '780 patent, which Mr. Miles had assigned to  
10 NuVasive.

11           211. At the very latest, Alphatec has knowledge of the '780 patent as of the  
12 filing of this Complaint.

13           212. In violation of 35 U.S.C. § 271(a), Alphatec has and continues to  
14 directly infringe one or more claims of the '780 patent.

15           213. In particular, and without limitation, Alphatec directly infringes the  
16 '780 patent by making, using, selling, offering for sale, and/or importing into the  
17 United States products and systems including, but not limited to, the Initial Dilator,  
18 the Secondary Dilator, the Squadron™ Lateral Retractor Body, the Squadron™  
19 Lateral Retractor Right Blade, the Squadron™ Lateral Retractor Left Blade, and  
20 the Squadron™ Lateral Retractor Posterior Blade (collectively, "the '780  
21 Infringing System"), which are components of the Battalion™ Lateral System,  
22 without the permission of NuVasive.

23           214. The '780 Infringing System infringes at least claim 21 of the '780  
24 patent.

25           215. As explained in the Alphatec Surgical Guide, the '780 Infringing  
26 System is a system for forming an operating corridor to a lumbar spine.

27           216. The Alphatec Surgical Guide discloses a dilator system to create a  
28 distraction corridor along a lateral, transpsoas path to the lumbar spine. The

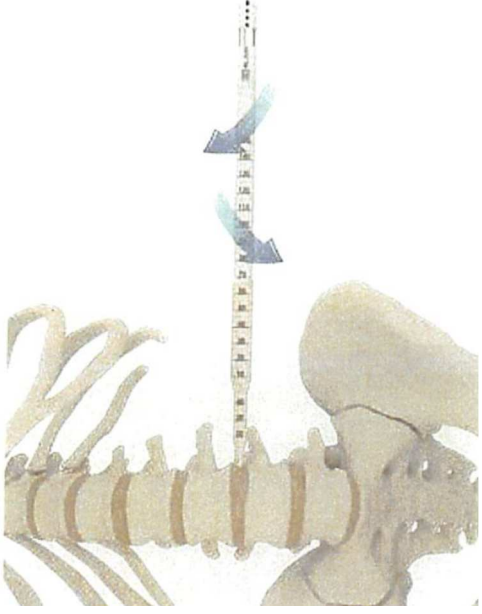
1 Alphatec Surgical Guide discloses that the dilator system includes at least two  
2 dilators of sequentially larger widths deliverable to a spinal disc along a lateral,  
3 trans-psoas path to the lumbar spine. The second dilator of the two dilators  
4 slidably engages the exterior of the first dilator of the two dilators (Ex. U at 6-8):

5 Introduce the Secondary Dilator over  
6 the Initial Dilator using a clockwise,  
7 counter-clockwise motion. Advance the  
8 Second Dilator until it is flush with the  
9 disc space.

10 TRaversing the Psoas

11 Carefully split the muscle fibers of the  
12 psoas by advancing the Dilator in a  
13 clockwise to counter-clockwise motion.  
14 Neuromonitoring may be used to  
15 detect the location and proximity of the  
16 nerves as the psoas is traversed.

17 Adjust the Dilator's position so it is  
18 flush with the disc space and confirm  
19 with AP fluoroscopy.



20 217. The Alphatec Surgical Guide discloses that at least one of the first and  
21 second dilators includes a stimulation electrode to deliver electrical stimulation for  
22 nerve monitoring when the stimulation electrode is positioned along the lateral,  
23 trans-psoas path to the lumbar spine (Ex. U at 5-6):

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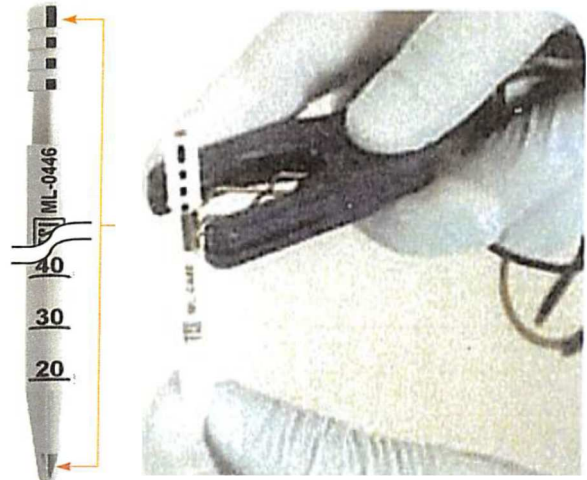
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1 Place the Universal Clip onto exposed  
2 silver ring at the proximal end of the  
3 Dilator and connect to the appropriate  
4 neuromonitoring platform.

#### 4 TRAVERSING THE PSOAS

5 Carefully split the muscle fibers of the  
6 psoas by advancing the Dilator in a  
7 clockwise to counter-clockwise motion.  
8 Neuromonitoring may be used to  
9 detect the location and proximity of the  
10 nerves as the psoas is traversed.



10 218. The Alphatec Surgical Guide discloses the Squadron™ Lateral  
11 Retractor, which includes a blade holder assembly and three blades. The Alphatec  
12 Surgical Guide discloses that the Squadron™ Lateral Retractor is slidable over the  
13 dilator system along the lateral, transpsoas path. The blade holder assembly and  
14 first, second and third retractor blades extend generally perpendicularly relative to  
15 arm members of the blade holder assembly (Ex. U at 10, 14):

16 The Retractor is then introduced into  
17 the space over the Second Dilator  
18 using a clockwise, counter-clockwise  
19 motion until the Retractor is flush with  
20 the disc space.

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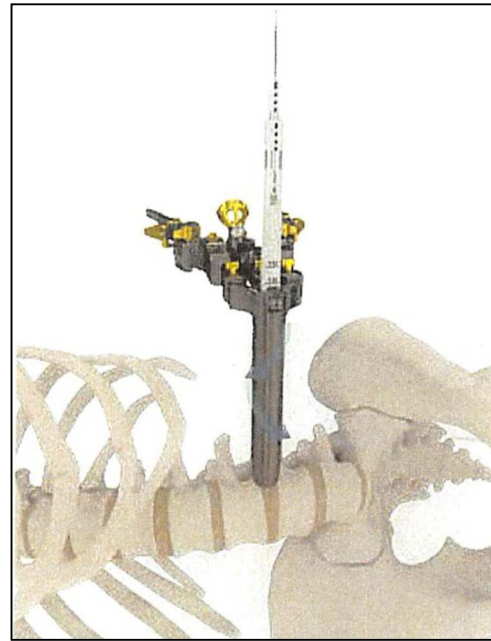
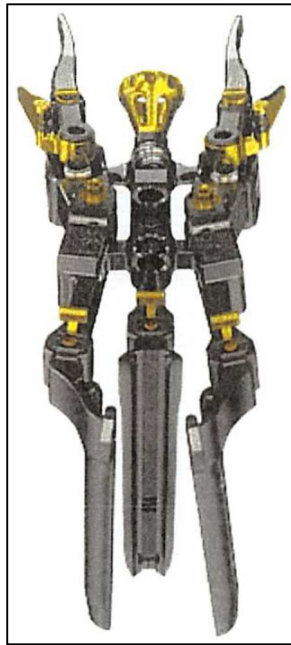
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11           219. The Alphatec Surgical Guide discloses that the Squadron™ Lateral  
12 Retractor is adjustable from a first position in which the three blades are adjacent  
13 to one another and slidable over the dilator system to a second position in which  
14 the second and third retractor blades move away from the first retractor blade to  
15 enlarge the distraction corridor, forming an operative corridor along the lateral,  
16 transpsoas path to the lumbar spine (Ex. U at 1, 20):

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**7** DISC SPACE ACCESS

Expand the right and/or left blade to expose the disc space and gain optimal access for the procedure.

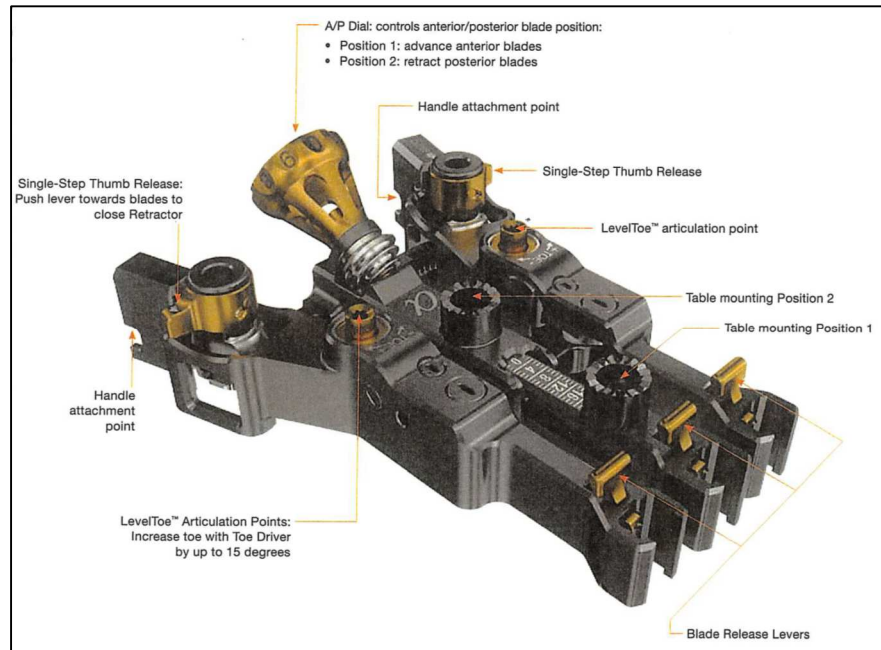
Retract the psoas anterior to visualize the disc space by rotating the gold A/P Dial. The Blade Toe Driver may be used for additional torque.



*Alphatec Spine*

27           220. The Alphatec Surgical Guide discloses that the first blade of the  
28 Squadron™ Lateral Retractor is linearly movable relative to the second and third

1 blades in response to the rotation of a knob element on the blade holder assembly  
2 (Ex. U at 13, 17):



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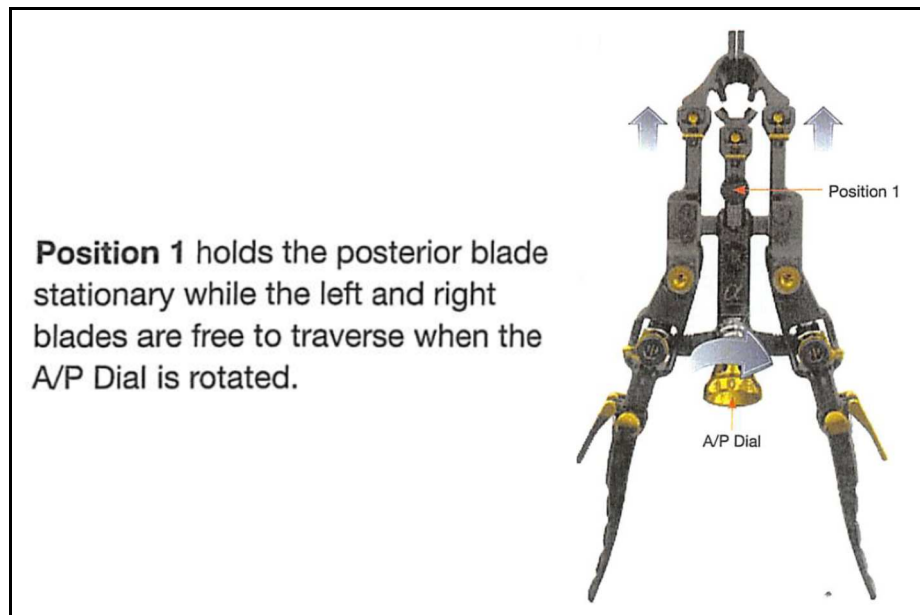
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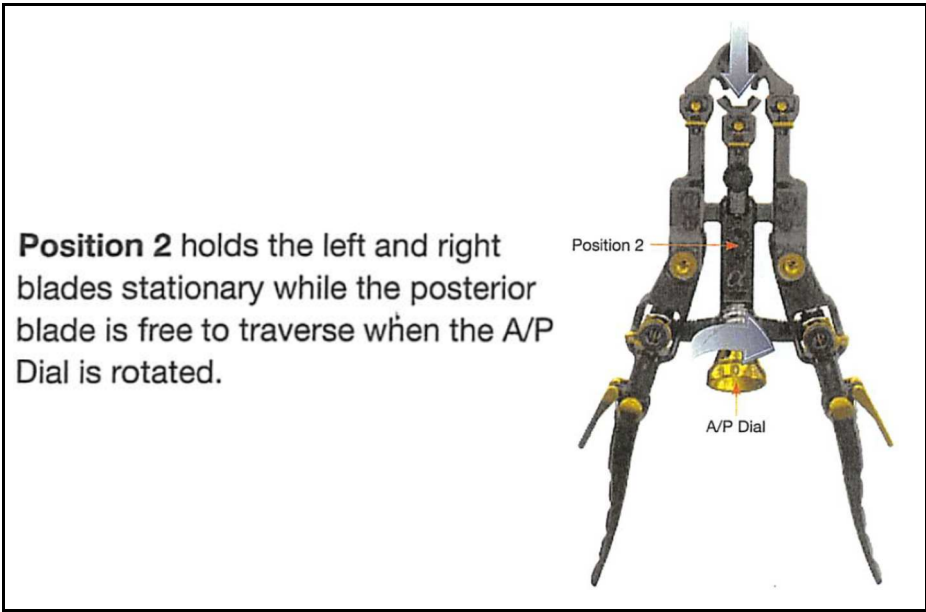
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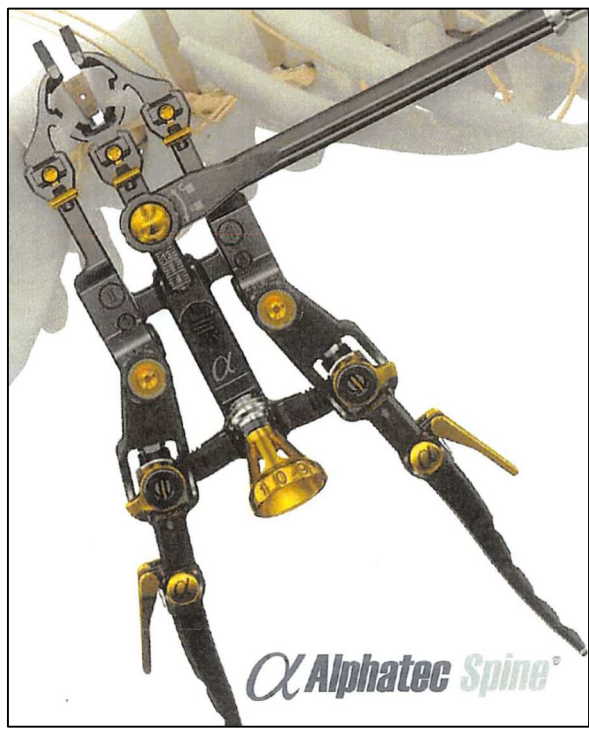
The Table Fixation Arm can be attached to the Retractor in two locations:



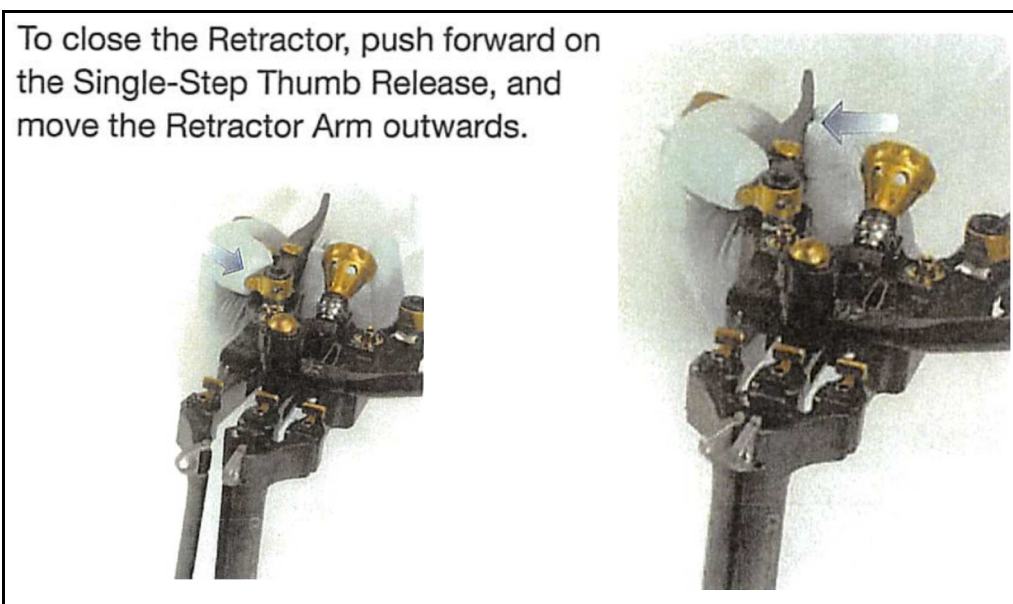
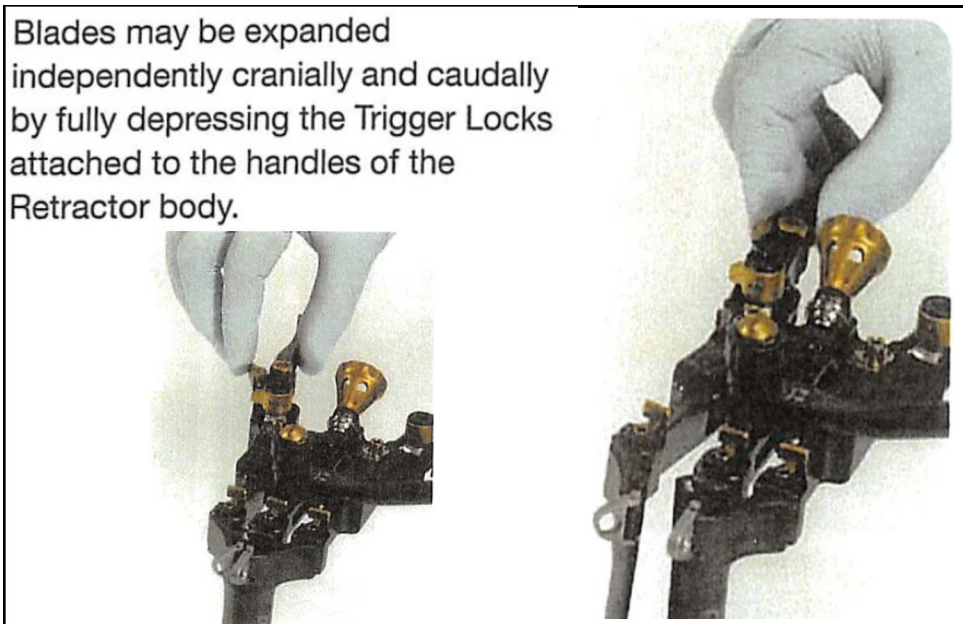
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221. The Alphatec Surgical Guide discloses that the second blade is movable relative to the first blade in response to a pivoting movement of the first arm member coupled to the second blade, and that the third blade is movable relative to the first blade in response to a pivoting movement of the second pivotable arm coupled to the third retractor blade (Ex. U at 1, 14-15):



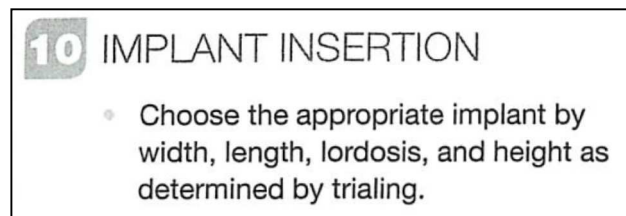
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1           222. The Alphatec Surgical Guide discloses that the Squadron Lateral  
2 Retractor™ is adjusted to the second position to form the operative corridor along  
3 the lateral, trans-psoas path to the lumbar spine, where the first blade is the  
4 posterior-most retractor blade among the first, second and third blades. *Supra*,  
5 ¶¶ 218-219.

6           223. The Alphatec Surgical Guide discloses that the operative corridor is  
7 dimensioned so as to pass an implant through the operative corridor and into the  
8 lumbar spine (Ex. U at 24):



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13           224. Alphatec is, thus, liable for direct infringement of the '780 patent  
14 pursuant to 35 U.S.C. § 271(a).

15           225. In violation of 35 U.S.C. § 271(b), Alphatec has and continues to  
16 induce infringement of at least claim 21 of the '780 patent.

17           226. With knowledge of the '780 patent, Alphatec has and continues to  
18 induce jointly and separately the direct infringement of at least claim 21 of the  
19 '780 patent by others, such as surgeons, by actively encouraging them to use at  
20 least the '780 Infringing System in an infringing manner, with specific intent to  
21 induce such actions knowing, or being willfully blind to, the fact that the induced  
22 actions constitute infringement of at least claim 21 of the '780 patent.

23           227. On information and belief, Alphatec had and continues to have  
24 specific intent to induce direct infringement by surgeons of at least claim 21 of the  
25 '780 patent, knowing, or being willfully blind to, the fact that the induced actions  
26 constitute infringement.

1           228. The Alphatec Surgical Guide provides specific instructions teaching  
2 surgeons how to use the '780 Infringing System to perform the Alphatec Lateral  
3 Procedure

4           229. The Alphatec Surgical Guide describes the '780 Infringing System  
5 with detailed information about its features, which match each and every element  
6 of at least claim 21 of the '780 patent, as outlined above.

7           230. Alphatec has and continues to actively encourage others, such as  
8 surgeons, to directly infringe at least claim 21 of '780 patent.

9           231. Alphatec's affirmative acts of active encouragement include, among  
10 other things: (1) publishing surgical techniques, conducting organized surgical  
11 training courses, and engaging in other marketing activities, to promote the  
12 Battalion™ Lateral System which includes the '780 Infringing System; (2)  
13 teaching, instructing, and training surgeons how to use the '780 Infringing System  
14 for the Alphatec Lateral Procedure; and (3) supplying one or more components of  
15 the '780 Infringing System, the components including, but not limited to, the Initial  
16 Dilator, the Secondary Dilator, the Squadron™ Lateral Retractor Body, the  
17 Squadron™ Lateral Retractor Right Blade, the Squadron™ Lateral Retractor Left  
18 Blade, and the Squadron™ Lateral Retractor Posterior Blade (individually, a "'780  
19 Infringing Component").

20           232. On information and belief, following Alphatec's active  
21 encouragement, others, such as surgeons, have used and continue to use the '780  
22 Infringing System in performing the Alphatec Lateral Procedure, and thus have  
23 and continue to directly infringe at least claim 21 of the '780 patent.

24           233. Alphatec is, thus, liable for induced infringement of the '780 patent  
25 pursuant to 35 U.S.C. § 271(b).

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1           234. In violation of 35 U.S.C. § 271(c) Alphatec has and continues to  
2 contribute to the direct infringement by others, such as surgeons, of at least claim  
3 21 of the '780 patent.

4           235. Alphatec has and continues to offer for sell, sell, and/or import one or  
5 more the '780 Infringing Components which constitute a material part of at least  
6 claim 21 of the '780 patent and lack any substantial non-infringing use, knowing,  
7 or being willfully blind to, the fact that those components are especially made or  
8 adapted for use in infringing at least claim 21 of the '780 patent.

9           236. On information and belief, following Alphatec's contributory  
10 actions, others, such as surgeons, have used and continue to use the '780 Infringing  
11 System for the Alphatec Lateral Procedure and thus have directly infringed and  
12 continue to directly infringe at least claim 21 of the '780 patent.

13           237. On information and belief, Alphatec knew and does now know, or  
14 was willfully blind to, the fact that use of the '780 Infringing System by surgeons  
15 for the Alphatec Lateral Procedure infringes at least claim 21 of the '780 patent, as  
16 outlined above.

17           238. On information and belief, Alphatec purposefully designed each of  
18 the '780 Infringing Components as part of the '780 Infringing System for use in  
19 performing the Alphatec Lateral Procedure and for no other purpose. For example,  
20 the Right, Left and Posterior Blades of the Squadron™ Lateral Retractor are sized  
21 to match the distance from the side of a patient to the lumbar spine of the patient,  
22 and the size of the Blades is determined using the depth markings on the Initial  
23 Dilator.

24           239. On information and belief, Alphatec thus knew and does now know  
25 the '780 Infringing Components are each especially made or adapted for use in  
26 infringing the at least claim 21 of the '780 patent.

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1           240.     On information and belief, Alphatec thus knew and does now know  
2 the '780 Infringing Components are each not a staple article or commodity of  
3 commerce suitable for substantial non-infringing use.

4           241.     On information and belief, Alphatec thus knew and does now know  
5 that the '780 Infringing Components are each essential to and enable the use of the  
6 '780 Infringing System for performing the Alphatec Lateral Procedure by  
7 surgeons.

8           242.     Each of the '780 Infringing Components embodies at least a  
9 majority of the limitations of at least claim 21 of the '780 patent.

10          243.     Alphatec is, thus, liable for contributory infringement of the '780  
11 patent pursuant to 35 U.S.C. § 271(c).

12          244.     In violation of 35 U.S.C. § 271(f)(1), on information and belief,  
13 Alphatec has been and continues to supply or cause to be supplied in or from the  
14 United States all or a substantial portion of the components of the '780 Infringing  
15 System including, but not limited to, one or more of the '780 Infringing  
16 Components, where such components are uncombined in whole or in part, in such  
17 a manner to actively induce the combination of such components outside of the  
18 United States in a manner that practices at least claim 21 of the '780 patent.

19          245.     Alphatec is, thus, liable for infringement of the '780 patent pursuant  
20 to 35 U.S.C. § 271(f)(1).

21          246.     In violation of 35 U.S.C. § 271(f)(2), on information and belief,  
22 Alphatec has been and continues to supply or cause to be supplied in or from the  
23 United States one or more of the '780 Infringing Components, where such  
24 component is uncombined in whole or part, intending that such component will be  
25 combined outside of the United States in a manner that practices at least claim 21  
26 of the '780 patent.

27          247.     On information and belief, Alphatec knew and does now know, or  
28 was willfully blind to, the fact that the '780 Infringing Components are each



1 especially made or adapted for use in the '780 Infringing System and are each not a  
2 staple article or commodity of commerce suitable for substantial non-infringing  
3 use.

4 248. Alphatec is, thus, liable for infringement of the '780 patent pursuant  
5 to 35 U.S.C. § 271(f)(2).

6 249. Unless enjoined by this Court, Alphatec will continue to infringe one  
7 or more claims of the '780 patent, and NuVasive will continue to suffer irreparable  
8 harm for which there is no adequate remedy at law. Accordingly, NuVasive is  
9 entitled to preliminary and permanent injunctive relief against such infringement  
10 pursuant to 35 U.S.C. § 283.

11 250. As a result of Alphatec's infringement of one or more claims of the  
12 '780 patent, NuVasive has been and continues to be injured in its business and  
13 property rights, and is entitled to recover damages for such injuries pursuant to 35  
14 U.S.C. § 284 in an amount to be determined at trial.

15 251. On information and belief, at all times that infringement has occurred  
16 or will occur, Alphatec had and has actual and/or constructive knowledge of the  
17 '780 patent.

18 252. On information and belief, Alphatec's infringement of one or more  
19 claims of the '780 patent is willful, deliberate, and egregious. Accordingly,  
20 NuVasive is entitled to enhanced damages pursuant to 35 U.S.C. § 284 and to an  
21 award of attorney's fees and costs incurred in prosecuting this action pursuant to  
22 35 U.S.C. § 285.

23 253. Alphatec is precluded from challenging the validity of the '780 patent,  
24 including particularly under the doctrine of equitable estoppel.

25 254. Alphatec is in privity with Mr. Miles, who is an assignor and inventor  
26 of the '780 patent.

27 255. On information and belief, Alphatec has and continues to avail itself  
28 of Mr. Miles' knowledge and assistance to infringe the '780 patent.

1           256. Mr. Miles swore to the U.S. Patent Office that he is an inventor of the  
2 '780 patent.

3           257. On October 24, 2005, Mr. Miles signed a declaration, swearing that he  
4 believes he is an inventor of U.S. Patent Application No. 11/137,169 (“the ’169  
5 application”), which is an application to which the ’780 patent claims priority  
6 without any intervening continuation-in-part applications. Ex. AE at 2-3.

7           258. Mr. Miles’ inventor declaration (Ex. AE) was filed on April 23, 2007  
8 as an official declaration of record for the ’780 patent.

9           259. For good and valuable consideration, Mr. Miles assigned NuVasive  
10 all right, title and interest to the ’780 patent.

11 **VI. THIRD CAUSE OF ACTION — Infringement of U.S. Patent No.**  
12 **8,439,832**

13           260. NuVasive repeats and realleges the allegations of paragraphs 1  
14 through 259 in their entirety.

15           261. On May 14, 2013, the United States Patent and Trademark Office  
16 duly and legally issued U.S. Patent No. 8,439,832 (“the ’832 patent”), entitled  
17 “Surgical Access System and Related Methods,” to Patrick Miles, Scot Martinelli,  
18 Eric Finley, James Gharib, Allen Farquhar, Norbert Kaula, Jeffrey Blewett, and  
19 Gorette Medeiros (legal representative). A true and correct copy of the ’832 patent  
20 is attached hereto as Exhibit AF.

21           262. At all relevant times, NuVasive is and has been the owner, by valid  
22 assignment, of all right, title, and interest in and to the ’832 patent.

23           263. On information and belief, Alphatec had knowledge of the ’832 patent  
24 prior to the filing of this Complaint.

25           264. On information and belief, Alphatec has been monitoring and  
26 continues to monitor NuVasive’s patent portfolio, including patents and  
27 applications that are directed to lateral, transpsoas spinal procedures, systems, and  
28 devices, such as the ’832 patent.

1           265. On information and belief, Alphatec gained knowledge of the '832  
2 patent through its privity relationship with Mr. Miles, which formed at least as  
3 early as October 2, 2017.

4           266. Mr. Miles is a named inventor of the '832 patent and therefore had  
5 and continues to have knowledge of the '832 patent.

6           267. A privity relationship between Alphatec and Mr. Miles formed at least  
7 as early as October 2, 2017, when Mr. Miles joined Alphatec as its Executive  
8 Chairman.

9           268. Alphatec continues to be in privity with Mr. Miles.

10          269. Upon the formation of Alphatec's privity relationship with Mr. Miles,  
11 Alphatec was imputed with, and continues to be imputed with, Mr. Miles'  
12 knowledge of the '832 patent.

13          270. Alphatec has and continues to avail itself of Mr. Miles' knowledge  
14 and assistance to infringe the '832 patent, which Mr. Miles had assigned to  
15 NuVasive.

16          271. At the very latest, Alphatec has knowledge of the '832 patent as of the  
17 filing of this Complaint.

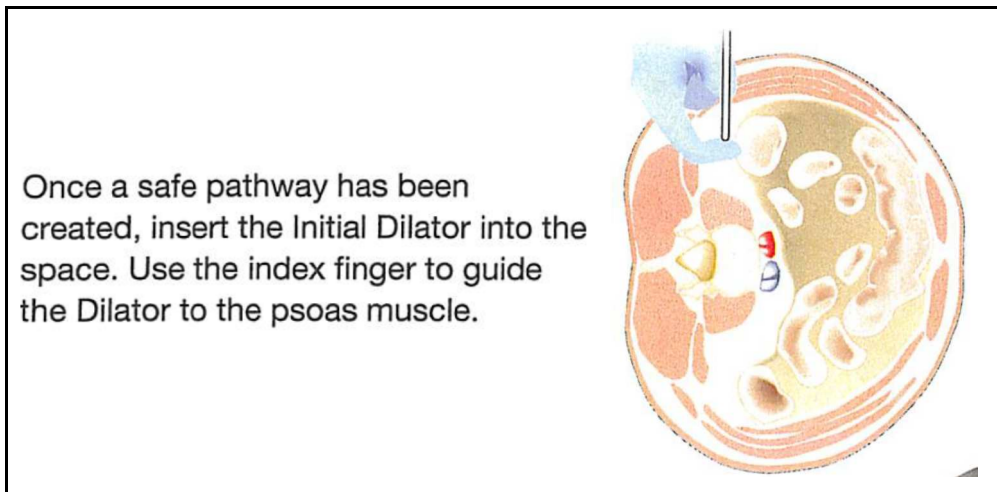
18          272. In violation of 35 U.S.C. § 271(a), Alphatec has and continues to  
19 directly infringe one or more claims of the '832 patent.

20          273. In particular, and without limitation, Alphatec directly infringes the  
21 '832 patent, by making, using, selling, offering for sale, and/or importing into the  
22 United States products and systems including, but not limited to the K-wire, the  
23 Initial Dilator, the Secondary Dilator, the Squadron™ Lateral Retractor Body, the  
24 Squadron™ Lateral Retractor Right Blade, the Squadron™ Lateral Retractor Left  
25 Blade, and the Squadron™ Lateral Retractor Posterior Blade (collectively, "the  
26 '832 Infringing System"), which are components of the Battalion™ Lateral  
27 System, without the permission of NuVasive.

1           274. The '832 Infringing System infringes at least claim 1 of the '832  
2 patent.

3           275. As explained in the Alphatec Surgical Guide, the '832 Infringing  
4 System is a system for forming an operating corridor to a lumbar spine.

5           276. The Alphatec Surgical Guide discloses a distraction assembly to  
6 create a tissue distraction corridor in a lateral, transpsoas path to a lumbar spine.  
7 The distraction assembly includes an elongate inner element and a plurality of  
8 dilators. The plurality of dilators is configured to be sequentially advanced along  
9 the lateral, transpsoas path to the lumbar spine. The elongate inner element is  
10 positionable in a lumen of the initial dilator (Ex. U at 5-7):



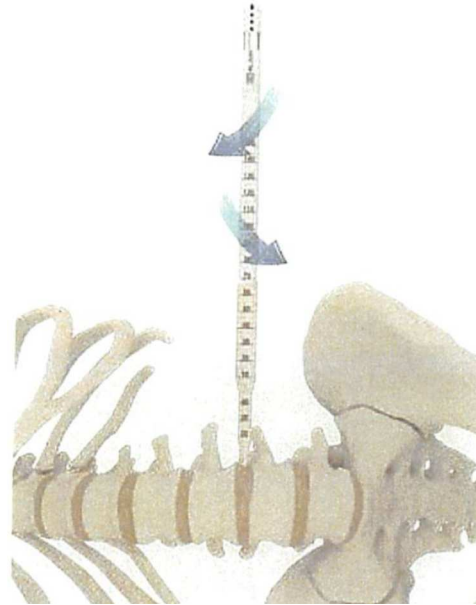
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1 TRAVERSING THE PSOAS

2 Carefully split the muscle fibers of the  
3 psoas by advancing the Dilator in a  
clockwise to counter-clockwise motion.

4 Once the Dilator's  
5 appropriate position is confirmed,  
6 introduce the K-wire through the Dilator  
halfway into the disc space.

7 Introduce the Secondary Dilator over  
8 the Initial Dilator using a clockwise,  
9 counter-clockwise motion. Advance the  
10 Second Dilator until it is flush with the  
disc space.

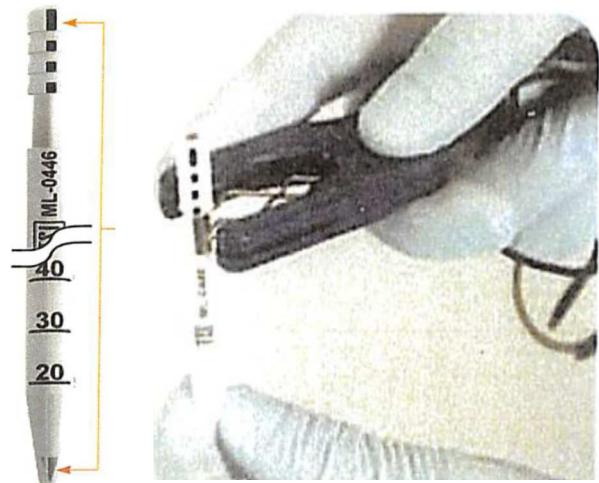


11 277. At least one of the dilators or elongate member includes a stimulation  
12 electrode that outputs electrical stimulation for nerve monitoring when positioned  
13 in the psoas muscle (Ex. U at 5-6):  
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15 Place the Universal Clip onto exposed  
16 silver ring at the proximal end of the  
17 Dilator and connect to the appropriate  
neuromonitoring platform.

18 TRAVERSING THE PSOAS

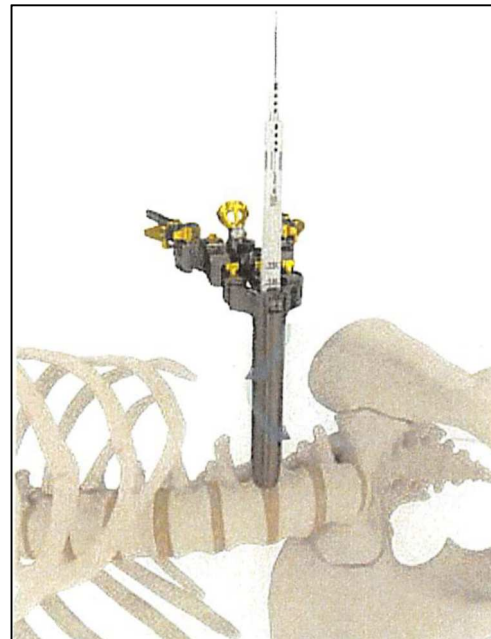
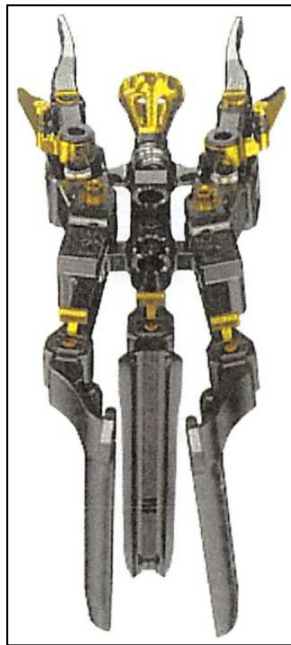
19 Carefully split the muscle fibers of the  
20 psoas by advancing the Dilator in a  
21 clockwise to counter-clockwise motion.  
22 Neuromonitoring may be used to  
detect the location and proximity of the  
23 nerves as the psoas is traversed.



24 278. The Alphatec Surgical Guide discloses the Squadron™ Lateral  
25 Retractor. The Squadron™ Lateral Retractor includes a blade-holder assembly, a  
26 posterior-most retractor blade, a cephalad-most retractor blade, and a caudal-most  
27 retractor blade. The Squadron™ Lateral Retractor is slidable over the exterior of  
28 the outer dilator toward the targeted disc along the lateral, transpsoas path. The

1 posterior-most, cephalad-most, and caudal-most retractor blades are slidably  
2 advanced over the exterior of the outermost sequential dilator while in a first  
3 position (Ex. U at 10, 14):

4 The Retractor is then introduced into  
5 the space over the Second Dilator  
6 using a clockwise, counter-clockwise  
7 motion until the Retractor is flush with  
8 the disc space.



279. The blade holder assembly on the Squadron™ Lateral Retractor is adjustable to move the cephalad-most and caudal-most blades to a second position in which those blades are spaced apart from the posterior-most blade to define an operative corridor. The Squadron™ Lateral Retractor is configured to define the operative corridor along the lateral, transpoas path to the lumbar spine (Ex. U at 1, 20):

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**7 DISC SPACE ACCESS**

Expand the right and/or left blade to expose the disc space and gain optimal access for the procedure.

Retract the psoas anterior to visualize the disc space by rotating the gold A/P Dial. The Blade Toe Driver may be used for additional torque.



Alphatec Spine

The image shows a surgical guide with two blades and a central dial, used for accessing the disc space. The blades are black with yellow accents, and the dial is gold. The brand name 'Alphatec Spine' is visible at the bottom right of the image.

280. The Alphatec Surgical Guide discloses that the space extending to the targeted spinal disc in the operative corridor is dimensioned so as to pass an implant through the operative corridor along the lateral, transpsoas path to the lumbar spine (Ex. U at 24):

**10 IMPLANT INSERTION**

- Choose the appropriate implant by width, length, lordosis, and height as determined by trialing.

281. Alphatec is, thus, liable for direct infringement of the '832 patent pursuant to 35 U.S.C. § 271(a).

282. In violation of 35 U.S.C. § 271(b), Alphatec has and continues to induce infringement of at least claim 1 of the '832 patent.

283. With knowledge of the '832 patent, Alphatec has and continues to induce jointly and separately the direct infringement of at least claim 1 of the '832 patent by others, such as surgeons, by actively encouraging use of at least the '832 Infringing System in an infringing manner, with specific intent to induce such actions knowing that the induced actions constitute infringement of at least claim 1 of the '832 patent.



1           284. On information and belief, Alphatec had and continues to have  
2 specific intent to induce direct infringement by surgeons of at least claim 1 of the  
3 '832 patent, knowing, or being willfully blind to, the fact that the induced actions  
4 constitute infringement.

5           285. The Alphatec Surgical Guide provides specific instruction teaching  
6 surgeons how to use the '832 Infringing System during the Alphatec Lateral  
7 Procedure.

8           286. The Alphatec Surgical Guide describes the '832 Infringing System  
9 with detailed information about its features, which match each and every element  
10 of at least claim 1 of the '832 patent, as outlined above.

11           287. Alphatec has and continues to actively encourage others, such as  
12 surgeons, to directly infringe at least claim 1 of '832 patent.

13           288. Alphatec's affirmative acts of active encouragement include, among  
14 other things: (1) publishing surgical techniques, conducting organized surgical  
15 training courses, and engaging in other marketing activities, to promote the  
16 Battalion™ Lateral System which includes the '832 Infringing System; (2)  
17 teaching, instructing, and training surgeons how to use the '832 Infringing System  
18 for the Alphatec Lateral Procedure; and (3) supplying one or more components of  
19 the '832 Infringing System, the components including, but not limited to, K-wire,  
20 the Initial Dilator, the Secondary Dilator, the Squadron™ Lateral Retractor Body,  
21 the Squadron™ Lateral Retractor Right Blade, the Squadron™ Lateral Retractor  
22 Left Blade, and the Squadron™ Lateral Retractor Posterior Blade (individually, a  
23 "'832 Infringing Component").

24           289. On information and belief, following Alphatec's active  
25 encouragement, surgeons have used and continue to use the '832 Infringing  
26 System in performing the Alphatec Lateral Procedure, and thus have and continue  
27 to directly infringe at least claim 1 of the '832 patent.

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1           290.    Alphatec is, thus, liable for induced infringement of the '832 patent  
2 pursuant to 35 U.S.C. § 271(b).

3           291.    In violation of 35 U.S.C. § 271(c) Alphatec has and continues to  
4 contribute to the direct infringement by others, such as surgeons, of at least claim 1  
5 of the '832 patent.

6           292.    Alphatec has and continues to offer for sell, sell, and/or import one  
7 or more the '832 Infringing Components which constitute a material part of at least  
8 claim 1 of the '832 patent and lack any substantial non-infringing use, knowing, or  
9 being willfully blind to, the fact that those components are especially made or  
10 adapted for use in infringing at least claim 1 of the '832 patent.

11          293.    On information and belief, following Alphatec's contributory  
12 actions, others, such as surgeons, have used and continue to use the '832 Infringing  
13 System for the Alphatec Lateral Procedure and thus have directly infringed and  
14 continue to directly infringe at least claim 1 of the '832 patent.

15          294.    On information and belief, Alphatec knew and does now know, or  
16 was willfully blind to, the fact that use of the '832 Infringing System by surgeons  
17 for the Alphatec Lateral Procedure infringes at least claim 1 of the '832 patent, as  
18 outlined above.

19          295.    On information and belief, Alphatec purposefully designed each of  
20 the '832 Infringing Components as part of the '832 Infringing System for use in  
21 performing the Alphatec Lateral Procedure and for no other purpose. For example,  
22 the Right, Left and Posterior Blades of the Squadron™ Lateral Retractor are sized  
23 to match the distance from the side of a patient to the lumbar spine of the patient,  
24 and the size of the Blades is determined using the depth markings on the Initial  
25 Dilator.

26          296.    On information and belief, Alphatec thus knew and does now know  
27 the '832 Infringing Components are each especially made or adapted for use in  
28 infringing the at least claim 1 of the '832 patent.

1           297.     On information and belief, Alphatec thus knew and does now know  
2 the '832 Infringing Components are each not a staple article or commodity of  
3 commerce suitable for substantial non-infringing use.

4           298.     On information and belief, Alphatec thus knew and does now know  
5 that the '832 Infringing Components are each essential to and enable the use of the  
6 '832 Infringing System for performing the Alphatec Lateral Procedure by  
7 surgeons.

8           299.     Each of the '832 Infringing Components embodies at least a  
9 majority of the limitations of at least claim 1 of the '832 patent.

10          300.     Alphatec is, thus, liable for contributory infringement of the '832  
11 patent pursuant to 35 U.S.C. § 271(c).

12          301.     In violation of 35 U.S.C. § 271(f)(1), on information and belief,  
13 Alphatec has been and continues to supply or cause to be supplied in or from the  
14 United States all or a substantial portion of the components of the '832 Infringing  
15 System including, but not limited to, one or more of the '832 Infringing  
16 Components, where such components are uncombined in whole or in part, in such  
17 a manner to actively induce the combination of such components outside of the  
18 United States in a manner that practices at least claim 1 of the '832 patent.

19          302.     Alphatec is, thus, liable for infringement of the '832 patent pursuant  
20 to 35 U.S.C. § 271(f)(1).

21          303.     In violation of 35 U.S.C. § 271(f)(2), on information and belief,  
22 Alphatec has been and continues to supply or cause to be supplied in or from the  
23 United States one or more of the '832 Infringing Components, where such  
24 component is uncombined in whole or part, intending that such component will be  
25 combined outside of the United States in a manner that practices at least claim 1 of  
26 the '832 patent.

27          304.     On information and belief, Alphatec knew and does now know, or  
28 was willfully blind to, the fact that the '832 Infringing Components are each

1 especially made or adapted for use in the '832 Infringing System and are each not a  
2 staple article or commodity of commerce suitable for substantial non-infringing  
3 use.

4 305. Alphatec is, thus, liable for infringement of the '832 patent pursuant  
5 to 35 U.S.C. § 271(f)(2).

6 306. In violation of 35 U.S.C. § 271(a), Alphatec also has and continues to  
7 directly infringe at least claim 12 of the '832 patent. In particular, and without  
8 limitation, Alphatec performs the method of claim 12 by demonstrating the  
9 Alphatec Lateral Procedure using at least using the K-Wire, Initial Dilator, the  
10 Secondary Dilator, the Squadron™ Lateral Retractor Body, the Squadron™ Lateral  
11 Retractor Right Blade, the Squadron™ Lateral Retractor Left Blade, and the  
12 Squadron™ Lateral Retractor Posterior Blade, and the Battalion™ Lateral Spacer  
13 in an infringing manner, which are components of the Battalion™ Lateral System,  
14 during promotional, educational, and training activities, such as in-person courses  
15 for surgeons.

16 307. As explained in the Alphatec Surgical Guide, the Alphatec Lateral  
17 Procedure is a method for accessing a spinal disc of a lumbar spine of a patient.

18 308. As explained in the Alphatec Surgical Guide, a plurality of  
19 sequentially larger diameter dilators is sequentially inserted into a patient along a  
20 lateral, transpsoas path to create a distraction corridor along the lateral, transpsoas  
21 path toward a targeted spinal disc, wherein the initial dilator is configured to  
22 receive an elongate inner element (Ex. U at 5-7):

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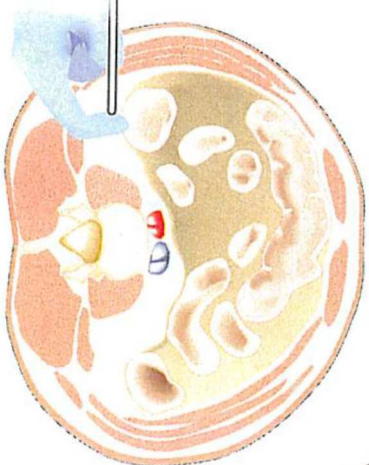
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Once a safe pathway has been created, insert the Initial Dilator into the space. Use the index finger to guide the Dilator to the psoas muscle.

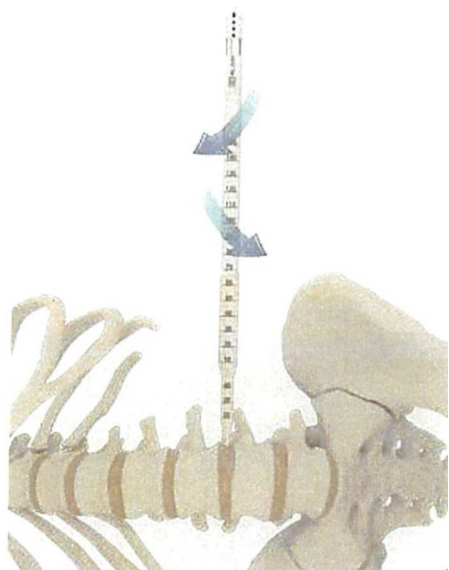


### TRAVERSING THE PSOAS

- Carefully split the muscle fibers of the psoas by advancing the Dilator in a clockwise to counter-clockwise motion.

Once the Dilator's appropriate position is confirmed, introduce the K-wire through the Dilator halfway into the disc space.

Introduce the Secondary Dilator over the Initial Dilator using a clockwise, counter-clockwise motion. Advance the Second Dilator until it is flush with the disc space.



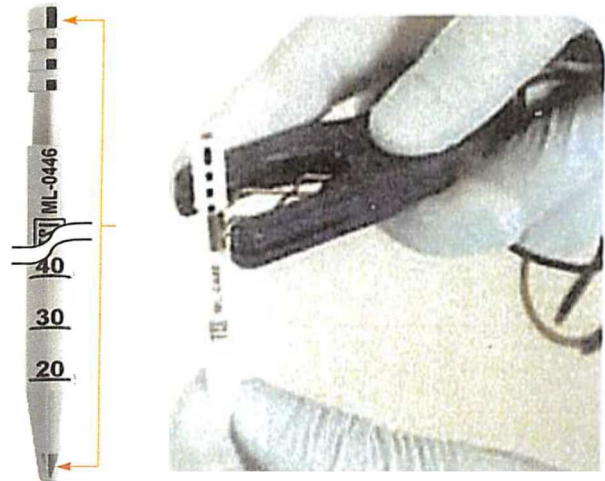
309. As explained in the Alphatec Surgical Guide, a dilator includes a stimulation electrode that outputs electrical stimulation for nerve monitoring when positioned in the lateral, transpsoas path (Ex. U at 5-6):

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1 Place the Universal Clip onto exposed  
2 silver ring at the proximal end of the  
3 Dilator and connect to the appropriate  
4 neuromonitoring platform.

5 TRaversing the PSOAS

6 Carefully split the muscle fibers of the  
7 psoas by advancing the Dilator in a  
8 clockwise to counter-clockwise motion.  
9 Neuromonitoring may be used to  
detect the location and proximity of the  
nerves as the psoas is traversed.

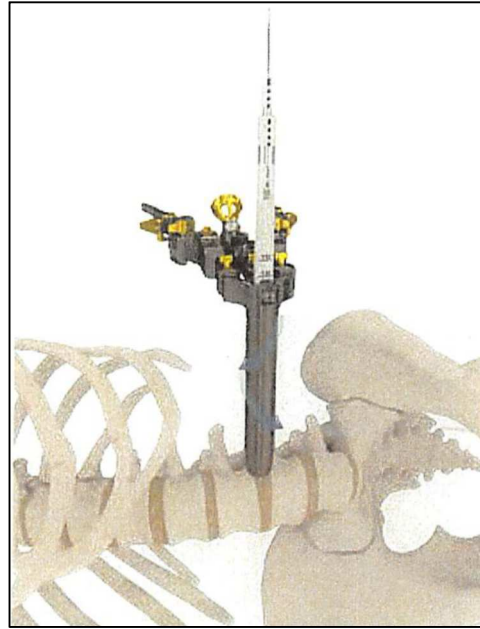
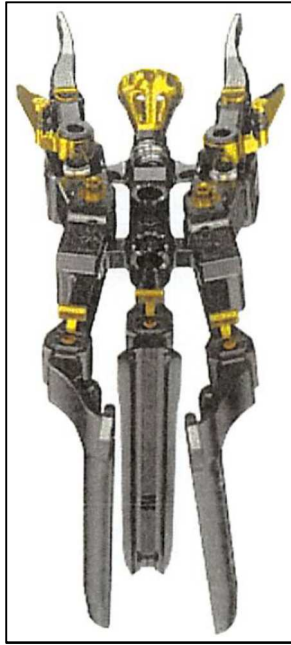


10 310. As explained in the Alphatec Surgical Guide, the Squadron™ Lateral  
11 Retractor is a three-bladed retractor tool that includes a posterior-most retractor  
12 blade, a cephalad-most retractor blade, and a caudal-most retractor blade, which  
13 are simultaneously advanced along a lateral, transpsoas path and over an exterior  
14 of an outermost dilator of the plurality of sequentially larger dilators (Ex. U at 10,  
15 14):

16 The Retractor is then introduced into  
17 the space over the Second Dilator  
18 using a clockwise, counter-clockwise  
19 motion until the Retractor is flush with  
20 the disc space.

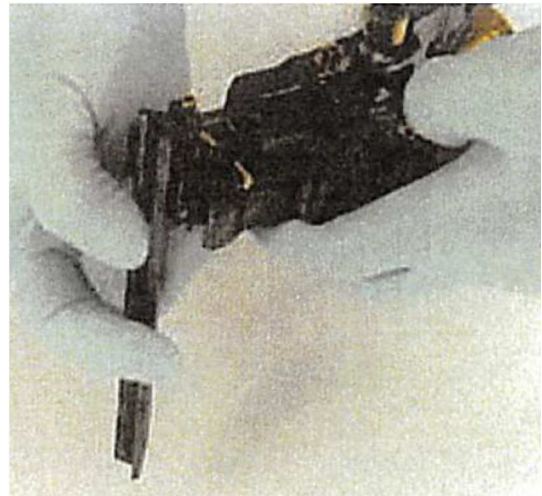
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311. As explained in the Alphatec Surgical Guide, the Squadron™ Lateral Retractor includes a blade holder assembly, which is attached to the posterior-most retractor blade, cephalad-most retractor blade, and caudal-most retractor blade (Ex. U at 9-10):

Load appropriately sized blades onto the Retractor directly in front of the Blade Release Levers. An audible click confirms each blade is fully inserted and locked into place.



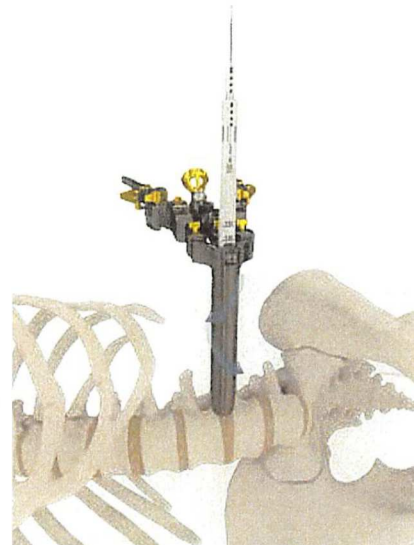
312. As explained in the Alphatec Surgical Guide, the plurality of sequentially larger diameter dilators is removed from the patient after the posterior-most retractor blade, cephalad-most retractor blade, and caudal-most retractor blade are advanced through the psoas muscle. (Ex. U at 10, 18):



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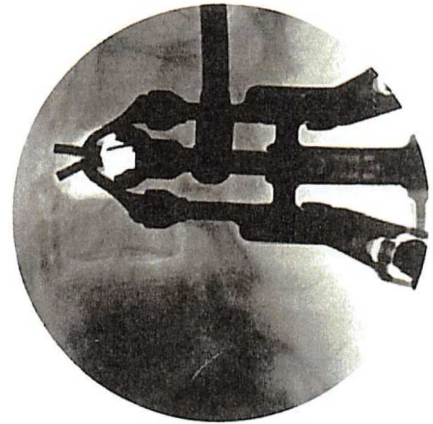
**6** TRAVERSING THE PSOAS

The Retractor is then introduced into the space over the Second Dilator using a clockwise, counter-clockwise motion until the Retractor is flush with the disc space.



**7** DISC SPACE ACCESS

Remove the Dilators, taking care to keep the K-wire in place.



313. As explained in the Alphatec Surgical Guide, the operative corridor along the lateral, transpsoas path to the targeted spinal disc is at least partially defined by the posterior-most retractor blade, cephalad-most retractor blade, and caudal-most retractor blade. The operative corridor is maintained along the lateral, transpsoas path using the Squadron™ Lateral Retractor while delivering a spinal implant to a disc space of the targeted spinal disc (Ex. U at 1, 20, 24, 28):

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1 **7** DISC SPACE ACCESS

2 Expand the right and/or left blade  
3 to expose the disc space and gain  
4 optimal access for the procedure.

5 Retract the psoas anterior to visualize  
6 the disc space by rotating the gold A/P  
7 Dial. The Blade Toe Driver may be used  
8 for additional torque.



9 **10** IMPLANT INSERTION

10 Choose the appropriate implant by  
11 width, length, lordosis, and height as  
12 determined by trialing.

13 **Battalion Lateral — Lumbar Spacer System**

14 The Battalion Universal Spacer System (Battalion System) is an intervertebral  
15 body fusion device with implants of various lengths, widths, heights, and  
16 degrees of lordosis to accommodate individual patient anatomy.

17 314. Alphatec is, thus, liable for direct infringement of the '832 patent  
18 pursuant to 35 U.S.C. § 271(a).

19 315. In violation of 35 U.S.C. § 271(b), Alphatec has and continues to  
20 induce infringement of at least claim 12 of the '832 patent.

21 316. With knowledge of the '832 patent, Alphatec has and continues to  
22 induce jointly and separately the direct infringement of at least claim 12 of the  
23 '832 patent by others, such as surgeons, by actively encouraging them to perform  
24 surgical techniques using at least the K-Wire, Initial Dilator, the Secondary  
25 Dilator, the Squadron™ Lateral Retractor Body, the Squadron™ Lateral Retractor  
26 Right Blade, the Squadron™ Lateral Retractor Left Blade, the Squadron™ Lateral  
27 Retractor Posterior Blade, and the Battalion™ Lateral Spacer in an infringing  
28 manner, with specific intent to induce such actions knowing that the induced  
actions constitute infringement of at least claim 12 of the '832 patent.

317. On information and belief, Alphatec had and continues to have  
specific intent to induce surgeons to perform Alphatec's Lateral Procedure,



1 knowing, or being willfully blind to, the fact that the induced actions constitute  
2 infringement of at least claim 12 of the '832 patent. For example, the Alphatec  
3 Surgical Guide instructs surgeons to perform each and every step of claim 12, as  
4 outlined above.

5 318. Alphatec has and continues to actively encourage others, such as  
6 surgeons, to directly infringe at least claim 12 of the '832 patent.

7 319. Alphatec's affirmative acts of active encouragement include, among  
8 other things: (1) publishing surgical techniques, conducting organized surgical  
9 training courses, and engaging in other marketing activities, to promote the  
10 Battalion™ Lateral System which includes the K-Wire, Initial Dilator, the  
11 Secondary Dilator, the Squadron™ Lateral Retractor Body, the Squadron™ Lateral  
12 Retractor Right Blade, the Squadron™ Lateral Retractor Left Blade, the  
13 Squadron™ Lateral Retractor Posterior Blade, and the Battalion™ Lateral Spacer;  
14 (2) teaching, instructing, and training surgeons to perform the Alphatec Lateral  
15 Procedure using at least the K-Wire, Initial Dilator, the Secondary Dilator, the  
16 Squadron™ Lateral Retractor Body, the Squadron™ Lateral Retractor Right Blade,  
17 the Squadron™ Lateral Retractor Left Blade, the Squadron™ Lateral Retractor  
18 Posterior Blade, and the Battalion™ Lateral Spacer; and (3) supplying at least the  
19 K-Wire, Initial Dilator, the Secondary Dilator, the Squadron™ Lateral Retractor  
20 Body, the Squadron™ Lateral Retractor Right Blade, the Squadron™ Lateral  
21 Retractor Left Blade, the Squadron™ Lateral Retractor Posterior Blade, and/or the  
22 Battalion™ Lateral Spacer to surgeons (individually, a "'832 Accused  
23 Component").

24 320. On information and belief, following Alphatec's active  
25 encouragement, surgeons have performed and continue to perform the Alphatec  
26 Lateral Procedure using one or more of the '832 Accused Components, in a  
27 manner that directly infringes at least claim 12 of the '832 patent.

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1           321. Alphatec is, thus, liable for induced infringement of the '832 patent  
2 pursuant to 35 U.S.C. § 271(b).

3           322. In violation of 35 U.S.C. § 271(c), Alphatec has and continues to  
4 contribute to the direct infringement by others, such as surgeons, of at least claim  
5 12 of the '832 patent.

6           323. Alphatec has and continues to offer for sell, sell, and/or import one  
7 or more components of the '832 Accused Components, which constitute a material  
8 part of at least claim 12 of the '832 patent and lack any substantial non-infringing  
9 use, knowing, or being willfully blind to, the fact that those components are  
10 especially made or adapted for use in infringing at least claim 12 of the '832  
11 patent.

12           324. On information and belief, following Alphatec's contributory actions,  
13 others, such as surgeons, have performed the Alphatec Lateral Procedure using one  
14 of more of the '832 Accused Components and thus have directly infringed and  
15 continue to directly infringe at least claim 12 of the '832 patent.

16           325. On information and belief, Alphatec knew and does now know, or  
17 was willfully blind to, the fact that performance of the Alphatec Lateral Procedure  
18 by surgeons infringes at least claim 12 of the '832 patent, as outlined above.

19           326. On information and belief, Alphatec purposefully designed each of the  
20 '832 Accused Components for use by surgeons in performing the Alphatec Lateral  
21 Procedure and for no other purpose. For example, the Right, Left and Posterior  
22 Blades of the Squadron™ Lateral Retractor are sized to match the distance from  
23 the side of a patient to the lumbar spine of the patient, and the size of the Blades is  
24 determined using the depth markings on the Initial Dilator.

25           327. On information and belief, Alphatec thus knew and does now know  
26 the '832 Accused Components are each especially made or adapted for use in  
27 infringing at least claim 1 of the '832 patent.

1           328. On information and belief, Alphatec thus knew and does now know  
2 the '832 Accused Components are each not a staple article or commodity of  
3 commerce suitable for substantial non-infringing use.

4           329. On information and belief, Alphatec thus knew and does now know  
5 that the '832 Accused Components are each essential to and enable the  
6 performance of the Alphatec Lateral Procedure by surgeons.

7           330. Each of the '832 Accused Components is used to perform at least a  
8 majority of the steps of at least claim 12 of the '832 patent.

9           331. Alphatec is, thus, liable for contributory infringement of the '832  
10 patent pursuant to 35 U.S.C. § 271(c).

11           332. Unless enjoined by this Court, Alphatec will continue to infringe one  
12 or more claims of the '832 patent, and NuVasive will continue to suffer irreparable  
13 harm for which there is no adequate remedy at law. Accordingly, NuVasive is  
14 entitled to preliminary and permanent injunctive relief against such infringement  
15 pursuant to 35 U.S.C. § 283.

16           333. As a result of Alphatec's infringement of one or more claims of the  
17 '832 patent, NuVasive has been and continues to be injured in its business and  
18 property rights, and is entitled to recover damages for such injuries pursuant to 35  
19 U.S.C. § 284 in an amount to be determined at trial.

20           334. On information and belief, at all times that infringement has occurred  
21 or will occur, Alphatec had and has actual and/or constructive knowledge of the  
22 '832 patent.

23           335. On information and belief, Alphatec's infringement of one or more  
24 claims of the '832 patent is willful, deliberate, and egregious. Accordingly,  
25 NuVasive is entitled to enhanced damages pursuant to 35 U.S.C. § 284 and to an  
26 award of attorney's fees and costs incurred in prosecuting this action pursuant to  
27 35 U.S.C. § 285.

28

1 336. Alphatec is precluded from challenging the validity of the '832 patent,  
2 including particularly under the doctrine of equitable estoppel.

3 337. Alphatec is in privity with Mr. Miles, who is an assignor and inventor  
4 of the '832 patent.

5 338. On information and belief, Alphatec has and continues to avail itself  
6 of Mr. Miles' knowledge and assistance to infringe the '832 patent.

7 339. Mr. Miles swore to the U.S. Patent Office that he is an inventor of the  
8 '832 patent

9 340. On July 20, 2004, Mr. Miles signed a declaration swearing that he  
10 believes he is an inventor of U.S. Patent Application No. 10/759,811 ("the '811  
11 application"), which is an application to which the '832 patent claims priority  
12 without any intervening continuation-in-part applications. Ex. AG at 1-2.

13 341. Mr. Miles' inventor declaration (Ex. AG) was filed on January 4,  
14 2011 as an official declaration of record for the '832 patent.

15 342. For good and valuable consideration, Mr. Miles assigned NuVasive  
16 all right, title and interest to the '832 patent.

17 **VII. FOURTH CAUSE OF ACTION — Infringement of U.S. Patent**  
18 **9,833,227**

19 343. NuVasive repeats and realleges the allegations of paragraphs 1  
20 through 342 in their entirety.

21 344. On December 5, 2017, the United States Patent and Trademark Office  
22 duly and legally issued U.S. Patent No. 9,833,227 ("the '227 patent"), entitled  
23 "Surgical Access System and Related Methods," to Patrick Miles, Scot Martinelli,  
24 Eric Finley, James Gharib, Allen Farquhar, Norbert F. Kaula, and Jeffrey J.  
25 Blewett. A true and correct copy of the '227 patent is attached hereto as  
26 Exhibit AH.

27 345. At all relevant times, NuVasive is and has been the owner, by valid  
28 assignment, of all right, title, and interest in and to the '227 patent.

1           346. On information and belief, Alphatec had knowledge of the '227 patent  
2 prior to the filing of this Complaint.

3           347. On information and belief, Alphatec has been monitoring and  
4 continues to monitor NuVasive's patent portfolio, including patents and  
5 applications that are directed to lateral, transposas spinal procedures, systems, and  
6 devices, such as the '227 patent.

7           348. On information and belief, Alphatec gained knowledge of the '227  
8 patent on December 5, 2017, when the patent issued.

9           349. A privity relationship between Alphatec and Mr. Miles formed at least  
10 as early as October 2, 2017, when Mr. Miles joined Alphatec as its Executive  
11 Chairman.

12           350. Mr. Miles is a named inventor of the '227 patent and therefore had  
13 and continues to have knowledge of the '227 patent, as soon as it was issued on  
14 December 5, 2017.

15           351. Alphatec continues to be in privity with Mr. Miles.

16           352. Upon the formation of Alphatec's privity relationship with Mr. Miles,  
17 Alphatec was imputed with, and continues to be imputed with, Mr. Miles'  
18 knowledge of the '227 patent.

19           353. Alphatec has and continues to avail itself of Mr. Miles' knowledge  
20 and assistance to infringe the '227 patent, which Mr. Miles had assigned to  
21 NuVasive.

22           354. At the very latest, Alphatec has knowledge of the '227 patent as of the  
23 filing of this Complaint.

24           355. In violation of 35 U.S.C. § 271(a), Alphatec has and continues to  
25 directly infringe one or more claims of the '227 patent.

26           356. In particular, and without limitation, Alphatec performs the methods  
27 claimed therein without the permission of NuVasive. For example, Alphatec  
28 demonstrates the Alphatec Lateral Procedure using at least the Initial Dilator, the

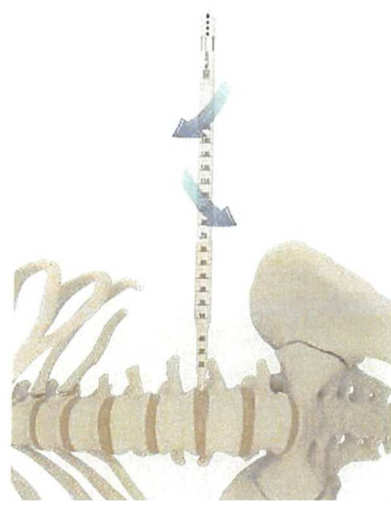
1 Secondary Dilator, the Squadron™ Lateral Retractor Right Blade, the Squadron™  
2 Lateral Retractor Left Blade, the Squadron™ Lateral Retractor Posterior Blade,  
3 and the Battalion™ Lateral Spacer, which are components of the Battalion™  
4 Lateral System, during promotional, educational, and training activities, such as in-  
5 person courses for surgeons.

6 357. Alphatec infringes at least claim 16 of the '227 patent.

7 358. As explained in the Alphatec Surgical Guide, the Alphatec Lateral  
8 Procedure is a method for forming an operating corridor to the lumbar spine of a  
9 patient.

10 359. As explained in the Alphatec Surgical Guide, a plurality of dilators is  
11 inserted into one of two anatomically lateral aspects of the patient, the diameter of  
12 the first dilator being smaller than the diameter of the second dilator (Ex. U at 8):

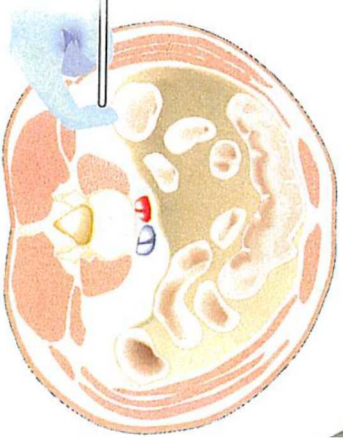
13  
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15 Introduce the Secondary Dilator over  
16 the Initial Dilator using a clockwise,  
17 counter-clockwise motion. Advance the  
18 Second Dilator until it is flush with the  
19 disc space.



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21 360. As explained in the Alphatec Surgical Guide, the plurality of dilators  
22 is advanced along a lateral, transpsoas path from one anatomically lateral aspect of  
23 the patient to the other anatomically laterally aspect of the patient to create a tissue  
24 distraction corridor along the lateral, transpsoas path to the target intervertebral  
25 disc, the lateral, transpsoas path extending through a region of the psoas muscle  
26 containing nerves and negotiating past the nerves (Ex. U at 5-7):  
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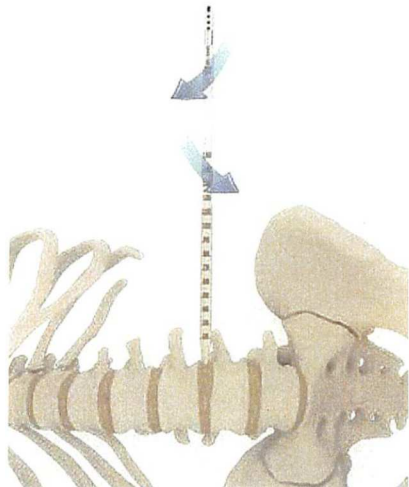
Once a safe pathway has been created, insert the Initial Dilator into the space. Use the index finger to guide the Dilator to the psoas muscle.



**TRAVERSING THE PSOAS**

- Carefully split the muscle fibers of the psoas by advancing the Dilator in a clockwise to counter-clockwise motion. Neuromonitoring may be used to detect the location and proximity of the nerves as the psoas is traversed.

Adjust the Dilator's position so it is flush with the disc space and confirm with AP fluoroscopy.

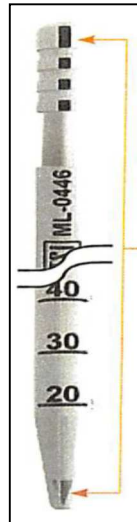


361. As explained in the Alphatec Surgical Guide, the distal region of a dilator includes a stimulation electrode (Ex. U at 5):

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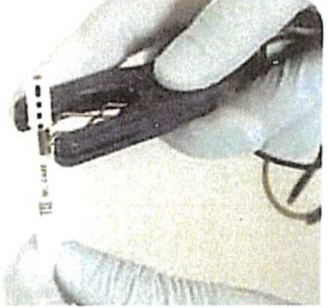


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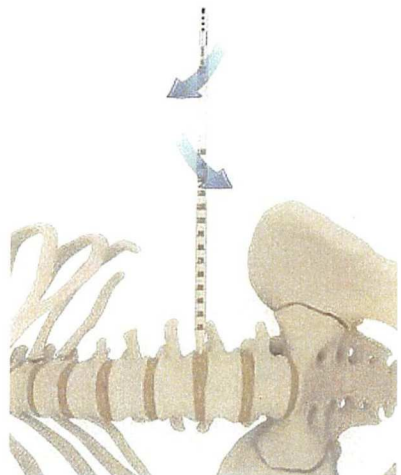
362. As explained in the Alphatec Surgical Guide, the stimulation electrode is used to electrically stimulate the nerves of the psoas muscle and monitor a nerve response. The dilator is advanced along the lateral, transpsoas path based on the monitoring to avoid impairment of the nerves of the psoas muscle (Ex. U at 5, 6):

Place the Universal Clip onto exposed silver ring at the proximal end of the Dilator and connect to the appropriate neuromonitoring platform.



### TRAVERSING THE PSOAS

- Carefully split the muscle fibers of the psoas by advancing the Dilator in a clockwise to counter-clockwise motion. Neuromonitoring may be used to detect the location and proximity of the nerves as the psoas is traversed. EMG or MMG are always recommended to monitor motor function. Additionally, SSEPs may be used to monitor sensory nerves throughout the procedure.





1           366. In violation of 35 U.S.C. § 271(b), Alphatec has and continues to  
2 induce infringement of at least claim 16 of the '227 patent.

3           367. With knowledge of the '227 patent, Alphatec has and continues to  
4 induce jointly and separately the direct infringement of at least claim 16 of the  
5 '227 patent by others, such as surgeons, by actively encouraging them to perform  
6 surgical techniques using at least the Initial Dilator, the Secondary Dilator, the  
7 Squadron™ Lateral Retractor Right Blade, the Squadron™ Lateral Retractor Left  
8 Blade, the Squadron™ Lateral Retractor Posterior Blade, and the Battalion™  
9 Lateral Spacer, in an infringing manner, with specific intent to induce such actions  
10 knowing that the induced actions constitute infringement of at least claim 16 of the  
11 '227 patent.

12           368. On information and belief, Alphatec had and continues to have  
13 specific intent to induce surgeons to perform Alphatec's Lateral Procedure,  
14 knowing, or being willfully blind to, the fact that the induced actions constitute  
15 infringement of at least claim 16 of the '227 patent. For example, the Alphatec  
16 Surgical Guide instructs surgeons to perform each and every step of claim 16, as  
17 outlined above.

18           369. Alphatec has and continues to actively encourage others, such as  
19 surgeons, to directly infringe at least claim 16 of the '227 patent.

20           370. Alphatec's affirmative acts of active encouragement include, among  
21 other things: (1) publishing surgical techniques, conducting organized surgical  
22 training courses, and engaging in other marketing activities, to promote the  
23 Battalion™ Lateral System which includes the Initial Dilator, the Secondary  
24 Dilator, the Squadron™ Lateral Retractor Right Blade, the Squadron™ Lateral  
25 Retractor Left Blade, the Squadron™ Lateral Retractor Posterior Blade, and the  
26 Battalion™ Lateral Spacer; (2) teaching, instructing, and training surgeons to  
27 perform the Alphatec Lateral Procedure using at least the Initial Dilator, the  
28 Secondary Dilator, the Squadron™ Lateral Retractor Right Blade, the Squadron™

1 Lateral Retractor Left Blade, the Squadron™ Lateral Retractor Posterior Blade,  
2 and the Battalion™ Lateral Spacer; and (3) supplying at least the Initial Dilator, the  
3 Secondary Dilator, the Squadron™ Lateral Retractor Right Blade, the Squadron™  
4 Lateral Retractor Left Blade, the Squadron™ Lateral Retractor Posterior Blade,  
5 and/or the Battalion™ Lateral Spacer to surgeons (individually, a “’227 Accused  
6 Component”).

7 371. On information and belief, following Alphatec’s active  
8 encouragement, surgeons have performed and continue to perform the Alphatec  
9 Lateral Procedure using one or more of the ’227 Accused Components, in a  
10 manner that directly infringes at least claim 16 of the ’227 patent.

11 372. Alphatec is, thus, liable for induced infringement of the ’227 patent  
12 pursuant to 35 U.S.C. § 271(b).

13 373. In violation of 35 U.S.C. § 271(c), Alphatec has and continues to  
14 contribute to the direct infringement by others, such as surgeons, of at least claim  
15 16 of the ’227 patent.

16 374. Alphatec has and continues to offer for sell, sell, and/or import one  
17 or more components of the ’227 Accused Components, which constitute a material  
18 part of at least claim 16 of the ’227 patent and lack any substantial non-infringing  
19 use, knowing, or being willfully blind to, the fact that those components are  
20 especially made or adapted for use in infringing at least claim 16 of the ’227  
21 patent.

22 375. On information and belief, following Alphatec’s contributory actions,  
23 others, such as surgeons, have performed the Alphatec Lateral Procedure using one  
24 of more of the ’227 Accused Components and thus have directly infringed and  
25 continue to directly infringe at least claim 16 of the ’227 patent.

26 376. On information and belief, Alphatec knew and does now know, or  
27 was willfully blind to, the fact that performance of the Alphatec Lateral Procedure  
28 by surgeons infringes at least claim 16 of the ’227 patent, as outlined above.

1           377. On information and belief, Alphatec purposefully designed each of the  
2 '227 Accused Components for use by surgeons in performing the Alphatec Lateral  
3 Procedure and for no other purpose. For example, the Right, Left and Posterior  
4 Blades of the Squadron™ Lateral Retractor are sized to match the distance from  
5 the side of a patient to the lumbar spine of the patient, and the size of the Blades is  
6 determined using the depth markings on the Initial Dilator.

7           378. On information and belief, Alphatec thus knew and does now know  
8 the '227 Accused Components are each especially made or adapted for use in  
9 infringing the at least claim 16 of the '227 patent.

10           379. On information and belief, Alphatec thus knew and does now know  
11 the '227 Accused Components are each not a staple article or commodity of  
12 commerce suitable for substantial non-infringing use.

13           380. On information and belief, Alphatec thus knew and does now know  
14 that the '227 Accused Components are each essential to and enable the  
15 performance of the Alphatec Lateral Procedure by surgeons.

16           381. Each of the '227 Accused Components is used to perform at least a  
17 majority of the steps of at least claim 16 of the '227 patent.

18           382. Alphatec is, thus, liable for contributory infringement of the '227  
19 patent pursuant to 35 U.S.C. § 271(c).

20           383. Unless enjoined by this Court, Alphatec will continue to infringe one  
21 or more claims of the '227 patent, and NuVasive will continue to suffer irreparable  
22 harm for which there is no adequate remedy at law. Accordingly, NuVasive is  
23 entitled to preliminary and permanent injunctive relief against such infringement  
24 pursuant to 35 U.S.C. § 283.

25           384. As a result of Alphatec's infringement of one or more claims of the  
26 '227 patent, NuVasive has been and continues to be injured in its business and  
27 property rights, and is entitled to recover damages for such injuries pursuant to 35  
28 U.S.C. § 284 in an amount to be determined at trial.

1           385. On information and belief, at all times that infringement has occurred  
2 or will occur, Alphatec had and has actual and/or constructive knowledge of the  
3 '227 patent.

4           386. On information and belief, Alphatec's infringement of one or more  
5 claims of the '227 patent is and has been willful, deliberate, and egregious.  
6 Accordingly, NuVasive is entitled to enhanced damages pursuant to 35 U.S.C. §  
7 284 and to an award of attorney's fees and costs incurred in prosecuting this action  
8 pursuant to 35 U.S.C. § 285.

9           387. Alphatec is precluded from challenging the validity of the '227 patent,  
10 particularly under the doctrine of equitable estoppel.

11           388. Alphatec is in privity with Mr. Miles, who is an assignor and inventor  
12 of the '227 patent.

13           389. On information and belief, Alphatec has and continues to avail itself  
14 of Mr. Miles' knowledge and assistance to infringe the '227 patent.

15           390. Mr. Miles swore to the U.S. Patent Office that he is an inventor of the  
16 '227 patent.

17           391. On July 18, 2013, Mr. Miles signed a declaration, swearing that he  
18 believes he is an inventor of U.S. Patent Application No. 13/757,035, which is an  
19 application to which the '227 patent claims priority without any intervening  
20 continuation-in-part applications. Ex. AI at 1.

21           392. Mr. Miles' inventor declaration (Ex. AI) was filed on September 28,  
22 2017 as an official declaration of record for the '227 patent.

23           393. For good and valuable consideration, Mr. Miles assigned NuVasive  
24 all right, title and interest to the '227 patent.

25 **VIII. FIFTH CAUSE OF ACTION — Infringement of U.S. Patent No.**

26 **8,753,270**

27           394. NuVasive repeats and realleges the allegations of paragraphs 1  
28 through 393 in their entirety.

1           395. On June 17, 2014, the United States Patent and Trademark Office  
2 duly and legally issued U.S. Patent No. 8,753,270 (“the ’270 patent”), entitled  
3 “Surgical Access System and Related Methods,” to Patrick Miles, Scot Martinelli  
4 and Eric Finley. A true and correct copy of the ’270 patent is attached hereto as  
5 Exhibit AJ.

6           396. At all relevant times, NuVasive is and has been the owner, by valid  
7 assignment, of all right, title, and interest in and to the ’270 patent.

8           397. On information and belief, Alphatec had knowledge of the ’270 patent  
9 prior to the filing of this Complaint.

10           398. On information and belief, Alphatec has been monitoring and  
11 continues to monitor NuVasive’s patent portfolio, including patents and  
12 applications that are directed to lateral, transposas spinal procedures, systems, and  
13 devices, such as the ’270 patent.

14           399. On information and belief, Alphatec gained knowledge of the ’270  
15 patent through its privity relationship with Mr. Miles, which formed at least as  
16 early as October 2, 2017.

17           400. Mr. Miles is a named inventor of the ’270 patent and therefore had  
18 and continues to have knowledge of the ’270 patent.

19           401. A privity relationship between Alphatec and Mr. Miles formed at least  
20 as early as October 2, 2017, when Mr. Miles joined Alphatec as its Executive  
21 Chairman.

22           402. Alphatec continues to be in privity with Mr. Miles.

23           403. Upon the formation of Alphatec’s privity relationship with Mr. Miles,  
24 Alphatec was imputed with, and continues to be imputed with, Mr. Miles’  
25 knowledge of the ’270 patent.

26           404. Alphatec has and continues to avail itself of Mr. Miles’ knowledge  
27 and assistance to infringe the ’270 patent, which Mr. Miles had assigned to  
28 NuVasive.



1 405. At the very latest, Alphatec has knowledge of the '270 patent as of the  
2 filing of this Complaint.

3 406. In violation of 35 U.S.C. § 271(a), Alphatec has and continues to  
4 directly infringe one or more claims of the '270 patent.

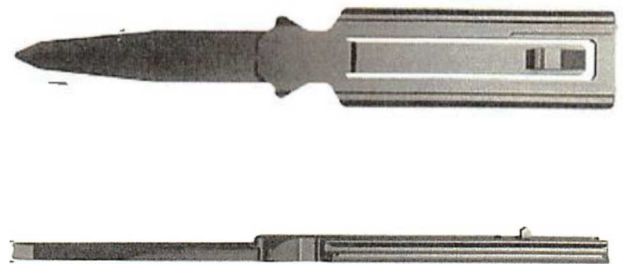
5 407. In particular, and without limitation, Alphatec directly infringes the  
6 '270 patent, by making, using, selling, offering for sale, and/or importing into the  
7 United States products and systems including, but not limited to the Intradiscal  
8 Shim which is a component of the Battalion™ Lateral System (“the Battalion™  
9 Intradiscal Shim”), without the permission of NuVasive.

10 408. The Battalion™ Intradiscal Shim infringes at least claim 1 of the '270  
11 patent.

12 409. As explained in the Alphatec Surgical Guide, the Battalion™  
13 Intradiscal Shim is a spinal shim device configured to releasably attach to a spinal  
14 access retractor blade of the Squadron™ Lateral Retractor. The Battalion™  
15 Intradiscal Shim is configured to penetrate into the spinal disc for anchoring the  
16 spinal access retractor blade of the Squadron™ Lateral Retractor to the disc space.

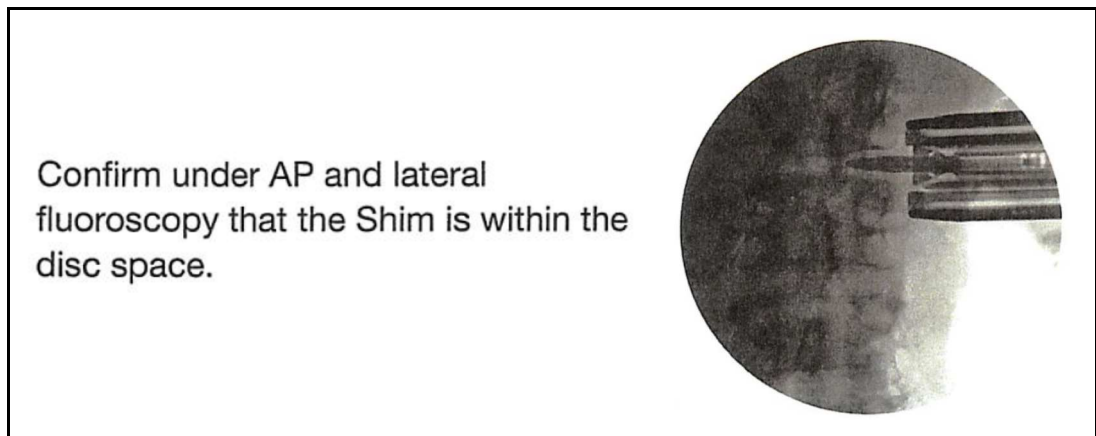
17 410. As explained in the Alphatec Surgical Guide, the Battalion™  
18 Intradiscal Shim comprises a proximal portion configured to releasably attach to  
19 the spinal access retractor blade (Ex. U at 19):

20  
21 To stabilize the Retractor, place the  
22 Intradiscal Shim through the center  
23 blade of the Retractor ensuring that  
24 the tabs on either side of the Inserter  
25 engage into the tracks on the inside  
26 of the blade. Advance the Shim until it  
27 engages into the disc space and locks  
28 at the bottom of the blade. Press the  
gold button at the proximal end of the  
Inserter to disengage the Shim.

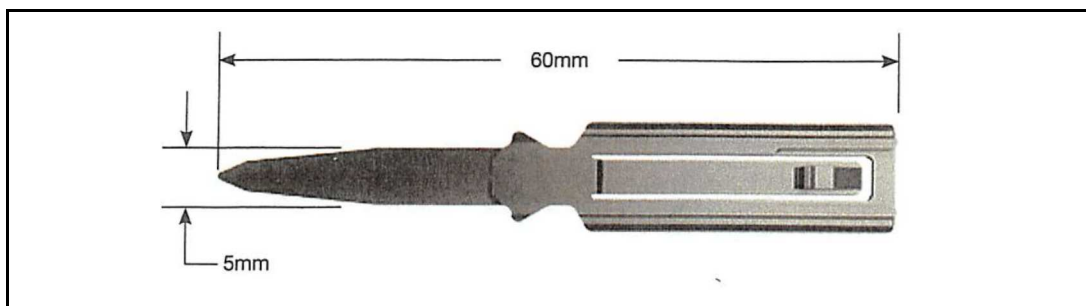




3           411. As explained in the Alphatec Surgical Guide, the Battalion™  
 4 Intradiscal Shim comprises a distal extension. The distal extension is configured to  
 5 extend distally of the spinal access retractor blade and penetrate into a disc space  
 6 between two adjacent vertebrae (Ex. U at 19):



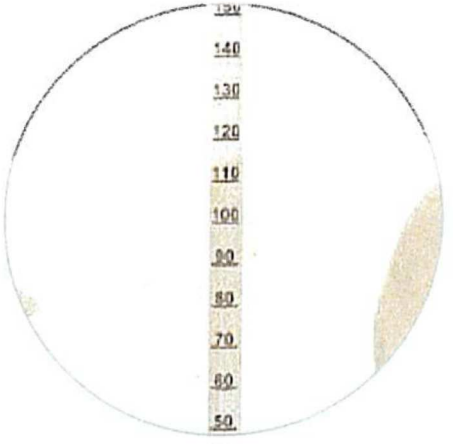
14           412. As explained in the Alphatec Surgical Guide, the Battalion™  
 15 Intradiscal Shim comprises a maximum longitudinal length extending from a  
 16 proximal-most end of the proximal portion to a distal-most end of the distal  
 17 extension. The maximum longitudinal length of the Battalion™ Intradiscal Shim  
 18 extends parallel to a longitudinal axis of the Battalion™ Intradiscal Shim, and that  
 19 is less than the maximum longitudinal length of the spinal access retractor blade to  
 20 which the proximal portion is configured to releasably attach (Ex. U at 7, 16, 19):



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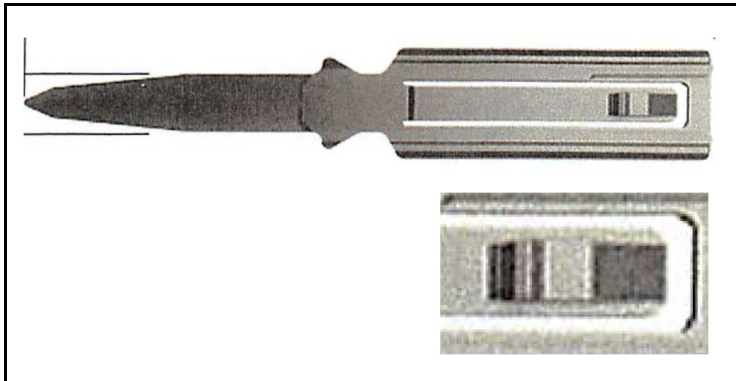
Take note of the Dilator depth and add 10mm to determine the desired blade length. Blade lengths are laser marked on the outside of each Retractor blade.

If a different length of blade is desired, blades may be changed by depressing the gold Blade Release Levers and removing the blade.

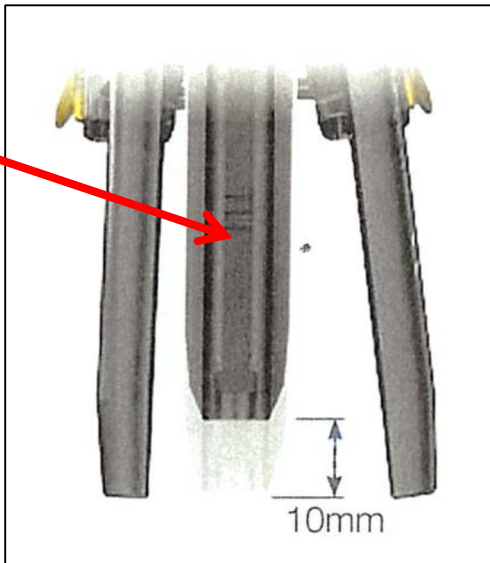


413. As explained in the Alphatec Surgical Guide, the distal extension includes a tapered tip region. The distal extension includes a maximum lateral width of the distal extension located proximally away from the distal-most end. The proximal portion has a proximal lateral width that is greater than the maximum lateral width of the distal extension. (Ex. U at 19).

414. As explained in the Alphatec Surgical Guide, the proximal portion defines a forward surface portion. The proximal portion includes a rearwardly extending ridge structure (Ex. U at 19):



1           415. As explained in the Alphatec Surgical Guide, the ridge structure  
2 releasably engages with a corresponding groove along an interior face of the spinal  
3 access retractor blade when the proximal portion releasably attaches to the spinal  
4 access retractor blade (Ex. U at 16):



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14           416. As explained in the Alphatec Surgical Guide, the ridge structure has a  
15 length that extends parallel to the longitudinal axis of the Battalion™ Intradiscal  
16 Shim and is bisected by a longitudinal plane. The longitudinal plane passes  
17 through the longitudinal axis of Battalion™ Intradiscal Shim. (Ex. U at 19.)

18           417. Alphatec is, thus, liable for direct infringement of the '270 patent  
19 pursuant to 35 U.S.C. § 271(a).

20           418. In violation of 35 U.S.C. § 271(b), Alphatec has and continues to  
21 induce infringement of at least claim 1 of the '270 patent.

22           419. With knowledge of the '270 patent, Alphatec has and continues to  
23 induce jointly and separately the direct infringement of at least claim 1 of the '270  
24 patent by others, such as surgeons, by actively encouraging them to use at least the  
25 Battalion™ Intradiscal Shim in an infringing manner, with specific intent to induce  
26 such actions knowing that the induced actions constitute infringement of at least  
27 claim 1 of the '270 patent.

1           420. On information and belief, Alphatec had and continues to have  
2 specific intent to induce direct infringement by surgeons of at least claim 1 of the  
3 '270 patent, knowing, or being willfully blind to, the fact that the induced actions  
4 constitute infringement.

5           421. The Alphatec Surgical Guide provides specific instruction teaching  
6 surgeons how to use the Battalion™ Intradiscal Shim to during the Alphatec  
7 Lateral Procedure.

8           422. The Alphatec Surgical Guide describes the Battalion™ Intradiscal  
9 Shim with detailed information about its features, which match each and every  
10 element of at least claim 1 of the '270 patent, as outlined above.

11           423. Alphatec has and continues to actively encourage others, such as  
12 surgeons, to directly infringe at least claim 1 of '270 patent.

13           424. Alphatec's affirmative acts of active encouragement include, among  
14 other things: (1) publishing surgical techniques, conducting organized surgical  
15 training courses, and engaging in other marketing activities, to promote the  
16 Battalion™ Lateral System which includes the Battalion™ Intradiscal Shim; (2)  
17 teaching, instructing, and training surgeons how to use the Battalion™ Intradiscal  
18 Shim for the Alphatec Lateral Procedure; and (3) supplying the Battalion™  
19 Intradiscal Shim to surgeons.

20           425. On information and belief, following Alphatec's active  
21 encouragement, surgeons have used and continue to use the Battalion™ Intradiscal  
22 Shim in performing the Alphatec Lateral Procedure, and thus have directly  
23 infringed and continue to directly infringe at least claim 1 of the '270 patent.

24           426. Alphatec is, thus, liable for induced infringement of the '270 patent  
25 pursuant to 35 U.S.C. § 271(b).

26           427. In violation of 35 U.S.C. § 271(c) Alphatec has and continues to  
27 contribute to the direct infringement by others, such as surgeons, of at least claim 1  
28 of the '270 patent.

1           428.     Alphatec has and continues to offer for sell, sell, and/or import one  
2 or more components which constitute a material part of at least claim 1 of the '270  
3 patent and lack any substantial non-infringing use, knowing, or being willfully  
4 blind to, the fact that those components are especially made or adapted for use in  
5 infringing at least claim 1 of the '270 patent.

6           429.     On information and belief, following Alphatec's contributory  
7 actions, others, such as surgeons, have used and continue to use the Battalion™  
8 Intradiscal Shim for the Alphatec Lateral Procedure and thus have directly  
9 infringed and continue to directly infringe at least claim 1 of the '270 patent.

10          430.     On information and belief, Alphatec knew and does now know, or  
11 was willfully blind to, the fact that use of the Battalion™ Intradiscal Shim by  
12 surgeons for the Alphatec Lateral Procedure infringes at least claim 1 of the '270  
13 patent, as outlined above.

14          431.     On information and belief, Alphatec purposefully designed the  
15 accused components as part of the Battalion™ Intradiscal Shim for use in  
16 performing the Alphatec Lateral Procedure and for no other purpose.

17          432.     On information and belief, Alphatec thus knew and does now know  
18 the accused components are each especially made or adapted for use in infringing  
19 the at least claim 1 of the '270 patent.

20          433.     On information and belief, Alphatec thus knew and does now know  
21 the accused components are each not a staple article or commodity of commerce  
22 suitable for substantial non-infringing use.

23          434.     On information and belief, Alphatec thus knew and does now know  
24 that the accused components are each essential to and enable the use of the  
25 Battalion™ Intradiscal Shim for performing the Alphatec Lateral Procedure by  
26 surgeons.

27          435.     Each of the accused components embodies at least a majority of the  
28 limitations of at least claim 1 of the '270 patent.

1           436.     Alphatec is, thus, liable for contributory infringement of the '270  
2 patent pursuant to 35 U.S.C. § 271(c).

3           437.     In violation of 35 U.S.C. § 271(f)(1), on information and belief,  
4 Alphatec has been and continues to supply or cause to be supplied in or from the  
5 United States all or a substantial portion of the components of the Battalion™  
6 Intradiscal Shim including, but not limited to, one or more of the accused  
7 components, where such components are uncombined in whole or in part, in such a  
8 manner to actively induce the combination of such components outside of the  
9 United States in a manner that practices at least claim 1 of the '270 patent.

10          438.     Alphatec is, thus, liable for infringement of the '270 patent pursuant  
11 to 35 U.S.C. § 271(f)(1).

12          439.     In violation of 35 U.S.C. § 271(f)(2), on information and belief,  
13 Alphatec has been and continues to supply or cause to be supplied in or from the  
14 United States one or more of the accused components, where such component is  
15 uncombined in whole or part, intending that such component will be combined  
16 outside of the United States in a manner that practices at least claim 1 of the '270  
17 patent.

18          440.     On information and belief, Alphatec knew and does now know, or  
19 was willfully blind to, the fact that the accused components are each especially  
20 made or adapted for use in the Battalion™ Intradiscal Shim and are each not a  
21 staple article or commodity of commerce suitable for substantial non-infringing  
22 use.

23          441.     Alphatec is, thus, liable for infringement of the '270 patent pursuant  
24 to 35 U.S.C. § 271(f)(2).

25          442.     Unless enjoined by this Court, Alphatec will continue to infringe one  
26 or more claims of the '270 patent, and NuVasive will continue to suffer irreparable  
27 harm for which there is no adequate remedy at law. Accordingly, NuVasive is  
28



1 entitled to preliminary and permanent injunctive relief against such infringement  
2 pursuant to 35 U.S.C. § 283.

3 443. As a result of Alphatec's infringement of one or more claims of the  
4 '270 patent, NuVasive has been and continues to be injured in its business and  
5 property rights, and is entitled to recover damages for such injuries pursuant to 35  
6 U.S.C. § 284 in an amount to be determined at trial.

7 444. On information and belief, at all times that infringement has occurred  
8 or will occur, Alphatec had and has actual and/or constructive knowledge of the  
9 '270 patent.

10 445. On information and belief, Alphatec's infringement of one or more  
11 claims of the '270 patent is and has been willful, deliberate, and egregious.  
12 Accordingly, NuVasive is entitled to enhanced damages pursuant to 35 U.S.C. §  
13 284 and to an award of attorney's fees and costs incurred in prosecuting this action  
14 pursuant to 35 U.S.C. § 285.

15 446. Alphatec is precluded from challenging the validity of the '270 patent,  
16 particularly under the doctrine of equitable estoppel.

17 447. Alphatec is in privity with Mr. Miles, who is an assignor and inventor  
18 of the '270 patent.

19 448. On information and belief, Alphatec has and continues to avail itself  
20 of Mr. Miles' knowledge and assistance to infringe the '270 patent.

21 449. Mr. Miles swore to the U.S. Patent Office that he is an inventor of the  
22 '270 patent.

23 450. On May 2, 2014, Mr. Miles signed a declaration, swearing that he  
24 believes he is an inventor on U.S. Patent Application No. 13/955,950, which issued  
25 as the '270 patent. Ex. AK at 1.

26 451. Mr. Miles' inventor declaration (Ex. AK) was filed on May 6, 2014 as  
27 an official declaration of record for the '270 patent.

28

1           452. For good and valuable consideration, Mr. Miles assigned NuVasive  
2 all right, title and interest to the '270 patent.

3 **IX. SIXTH CAUSE OF ACTION — Infringement of U.S. Patent No.**  
4 **8,361,156**

5           453. NuVasive repeats and realleges the allegations of paragraphs 1  
6 through 452 in their entirety.

7           454. On January 29, 2013, the United States Patent and Trademark Office  
8 duly and legally issued U.S. Patent No. 8,361,156 (“the '156 patent”), entitled  
9 “Systems and Methods for Spinal Fusion,” to Matthew Curran, Mark Peterson and  
10 Luiz Pimenta. A true and correct copy of the '156 patent is attached hereto as  
11 Exhibit AL. An as-filed certificate of correction filed June 25, 2013, is included in  
12 Exhibit AL at 31.

13           455. At all relevant times, NuVasive is and has been the owner, by valid  
14 assignment, of all right, title, and interest in and to the '156 patent.

15           456. On information and belief, Alphatec had knowledge of the '156 patent  
16 prior to the filing of this Complaint.

17           457. On information and belief, Alphatec has been monitoring and  
18 continues to monitor NuVasive’s patent portfolio, including patents and  
19 applications that are directed to lateral, transpsoas spinal procedures, systems, and  
20 devices, such as the '156 patent.

21           458. At the very latest, Alphatec has knowledge of the '156 patent as of the  
22 filing of this Complaint.

23           459. In violation of 35 U.S.C. § 271(a), Alphatec has and continues to  
24 directly infringe one or more claims of the '156 patent.

25           460. In particular, and without limitation, Alphatec directly infringes the  
26 '156 patent by making, using, selling, offering for sale, and/or importing into the  
27 United States products and systems including, but not limited to the Battalion™  
28

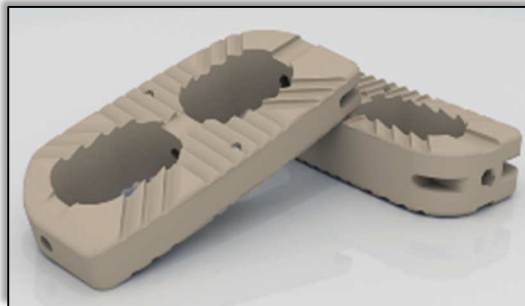
1 Lateral Spacer which is a component of the Battalion™ Lateral System, without  
2 the permission of NuVasive.

3 461. The Battalion™ Lateral Spacer infringes at least claim 1 of the '156  
4 patent.

5 462. The Battalion™ Lateral Spacer is a spinal fusion implant of non-bone  
6 construction positionable within an interbody space between a first and second  
7 vertebra (Ex. U at 28):

8 The Battalion Universal Spacer System (Battalion System) is an intervertebral body fusion  
9 device with implants of various lengths, widths, heights, and degrees of lordosis to  
10 accommodate individual patient anatomy. The implants are manufactured from PEEK Optima  
11 LT1 with/without titanium coated endplates and tantalum markers. All materials are surgical  
grade conforming to ASTM F2026 (PEEK), ASTM F1580 (titanium coating), and ASTM F560  
(tantalum).

12 463. The Battalion™ Lateral Spacer comprises an upper surface including  
13 anti-migration elements to contact a first vertebra and a lower surface including  
14 anti-migration elements to contact a second vertebra (Ex. V at 1):

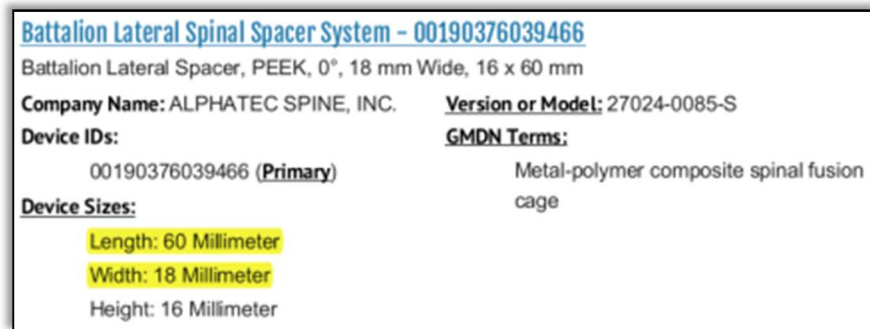


21 464. The Battalion™ Lateral Spacer comprises a distal wall, a proximal  
22 wall, a first sidewall, and a second sidewall generally opposite from the first  
23 sidewall. The distal wall, the proximal wall, the first sidewall, and the second  
24 sidewall comprise a radiolucent material (Ex. U at 28):

25 The implants are manufactured from PEEK Optima  
26 LT1 with/without titanium coated endplates and tantalum markers. All materials are surgical  
27 grade conforming to ASTM F2026 (PEEK), ASTM F1580 (titanium coating), and ASTM F560  
(tantalum).

28

1 465. The Battalion™ Lateral Spacer has a longitudinal length and a  
2 maximum lateral width extending from a proximal end of the proximal wall to a  
3 distal end of the distal wall. The maximum lateral width extends from the first  
4 sidewall to the second sidewall along a medial plane that is generally perpendicular  
5 to the longitudinal length. The longitudinal length is greater than the maximum  
6 lateral width. All versions of the Battalion™ Lateral Spacer have the features  
7 described in this paragraph. As one example only, one version of the Battalion™  
8 Lateral Spacer with these features is described below (Ex. AM (FDA Access  
9 GUDID Database search results for “Battalion Lateral”) at 1):



16  
17 466. The Battalion™ Lateral Spacer has a fusion aperture extending  
18 through the upper surface and the lower surface. The fusion aperture is configured  
19 to permit bone growth between the first and second vertebrae when the implant is  
20 positioned within the interbody space. *Supra* at ¶ 463 (showing a fusion aperture  
21 extending through the upper and lower surface of the Battalion™ Lateral Spacer.)

22 467. The fusion aperture has a longitudinal aperture length generally  
23 parallel to the implant longitudinal length. The fusion aperture has a lateral  
24 aperture width extending between the first sidewall to the second sidewall. The  
25 longitudinal aperture length is greater than the lateral aperture width. *Supra* at ¶  
26 463 (showing a fusion aperture extending through the upper and lower surface of  
27 the Battalion™ Lateral Spacer.)  
28



1 '156 patent, knowing, or being willfully blind to, the fact that the induced actions  
2 constitute infringement.

3 473. The Alphatec Surgical Guide provides specific instructions teaching  
4 surgeons how to use the Battalion™ Lateral Spacer during the Alphatec Lateral  
5 Procedure.

6 474. The Alphatec Surgical Guide describes the Battalion™ Lateral Spacer  
7 with detailed information about its features, which match each and every element  
8 of at least claim 1 of the '156 patent, as outlined above.

9 475. Alphatec has and continues to actively encourage others, such as  
10 surgeons, to directly infringe at least claim 1 of the '156 patent.

11 476. Alphatec's affirmative acts of active encouragement include, among  
12 other things: (1) publishing surgical techniques, conducting organized surgical  
13 training courses, and engaging in other marketing activities, to promote the  
14 Battalion™ Lateral Spacer; (2) teaching, instructing, and training surgeons how to  
15 implant the Battalion™ Lateral Spacer into human patients during the Alphatec  
16 Lateral Procedure; and (3) supplying the Battalion™ Lateral Spacer to surgeons.

17 477. On information and belief, following Alphatec's active  
18 encouragement, surgeons have used and continue to use the Battalion™ Lateral  
19 Spacer in performing the Alphatec Lateral Procedure, and thus have directly  
20 infringed and continue to directly infringe at least claim 1 of the '156 patent.

21 478. Alphatec is, thus, liable for induced infringement of the '156 patent  
22 pursuant to 35 U.S.C. § 271(b).

23 479. In violation of 35 U.S.C. § 271(c) Alphatec has and continues to  
24 contribute to the direct infringement by others, such as surgeons, of at least claim 1  
25 of the '156 patent.

26 480. Alphatec has and continues to offer for sell, sell, and/or import one  
27 or more components which constitute a material part of at least claim 1 of the '156  
28 patent and lack any substantial non-infringing use, knowing, or being willfully blind

1 to, the fact that those components are especially made or adapted for use in  
2 infringing at least claim 1 of the '156 patent.

3 481. On information and belief, following Alphatec's contributory  
4 actions, others, such as surgeons, have used and continue to use the Battalion™  
5 Lateral Spacer for the Alphatec Lateral Procedure and thus have directly infringed  
6 and continue to directly infringe at least claim 1 of the '156 patent.

7 482. On information and belief, Alphatec knew and does now know, or  
8 was willfully blind to, the fact that use of the Battalion™ Lateral Spacer by  
9 surgeons for the Alphatec Lateral Procedure infringes at least claim 1 of the '156  
10 patent, as outlined above.

11 483. On information and belief, Alphatec purposefully designed each of  
12 the accused components as part of the Battalion™ Lateral Spacer for use in  
13 performing the Alphatec Lateral Procedure and for no other purpose.

14 484. On information and belief, Alphatec thus knew and does now know  
15 the accused components are each especially made or adapted for use in infringing  
16 the at least claim 1 of the '156 patent.

17 485. On information and belief, Alphatec thus knew and does now know  
18 the accused components are each not a staple article or commodity of commerce  
19 suitable for substantial non-infringing use.

20 486. On information and belief, Alphatec thus knew and does now know  
21 that the accused components are each essential to and enable the use of the  
22 Battalion™ Lateral Spacer for performing the Alphatec Lateral Procedure by  
23 surgeons.

24 487. Each of the accused components embodies at least a majority of the  
25 limitations of at least claim 1 of the '156 patent.

26 488. Alphatec is, thus, liable for contributory infringement of the '156  
27 patent pursuant to 35 U.S.C. § 271(c).

28

1           489.     In violation of 35 U.S.C. § 271(f)(1), on information and belief,  
2 Alphatec has been and continues to supply or cause to be supplied in or from the  
3 United States all or a substantial portion of the components of the Battalion™  
4 Lateral Spacer including, but not limited to, one or more of the accused components,  
5 where such components are uncombined in whole or in part, in such a manner to  
6 actively induce the combination of such components outside of the United States in  
7 a manner that practices at least claim 1 of the '156 patent.

8           490.     Alphatec is, thus, liable for infringement of the '156 patent pursuant  
9 to 35 U.S.C. § 271(f)(1).

10          491.     In violation of 35 U.S.C. § 271(f)(2), on information and belief,  
11 Alphatec has been and continues to supply or cause to be supplied in or from the  
12 United States one or more of the accused components, where such component is  
13 uncombined in whole or part, intending that such component will be combined  
14 outside of the United States in a manner that practices at least claim 1 of the '156  
15 patent.

16          492.     On information and belief, Alphatec knew and does now know, or  
17 was willfully blind to, the fact that the accused components are each especially  
18 made or adapted for use in the Battalion™ Lateral Spacer and are each not a staple  
19 article or commodity of commerce suitable for substantial non-infringing use.

20          493.     Alphatec is, thus, liable for infringement of the '156 patent pursuant  
21 to 35 U.S.C. § 271(f)(2).

22          494.     Unless enjoined by this Court, Alphatec will continue to infringe one  
23 or more claims of the '156 patent, and NuVasive will continue to suffer irreparable  
24 harm for which there is no adequate remedy at law. Accordingly, NuVasive is  
25 entitled to preliminary and permanent injunctive relief against such infringement  
26 pursuant to 35 U.S.C. § 283.

27          495.     As a result of Alphatec's infringement of one or more claims of the  
28 '156 patent, NuVasive has been and continues to be injured in its business and



1 property rights, and is entitled to recover damages for such injuries pursuant to 35  
2 U.S.C. § 284 in an amount to be determined at trial.

3 496. On information and belief, at all times that infringement has occurred  
4 or will occur, Alphatec had and has actual and/or constructive knowledge of the  
5 '156 patent.

6 497. On information and belief, Alphatec's infringement of one or more  
7 claims of the '156 patent is and has been willful, deliberate, and egregious.  
8 Accordingly, NuVasive is entitled to enhanced damages pursuant to 35 U.S.C. §  
9 284 and to an award of attorney's fees and costs incurred in prosecuting this action  
10 pursuant to 35 U.S.C. § 285.

11 **X. SEVENTH CAUSE OF ACTION — Infringement of U.S. Design Patent**  
12 **No. D750,252**

13 498. NuVasive repeats and realleges the allegations of paragraphs 1  
14 through 497 in their entirety.

15 499. On February 23, 2016, the United States Patent and Trademark Office  
16 duly and legally issued U.S. Design Patent No. D750,252 ("the '252 patent"),  
17 entitled "Intervertebral Implant," to Nathan Lovell. A true and correct copy of the  
18 '252 patent is attached hereto as Exhibit AN.

19 500. At all relevant times, NuVasive is and has been the owner, by valid  
20 assignment, of all right, title, and interest in and to the '252 patent.

21 501. On information and belief, Alphatec had knowledge of the '252 patent  
22 prior to the filing of this Complaint.

23 502. On information and belief, Alphatec has been monitoring and  
24 continues to monitor NuVasive's patent portfolio, including patents and  
25 applications that are directed to lateral, transposas spinal procedures, systems, and  
26 devices, such as the '252 patent.

27 503. At the very latest, Alphatec has knowledge of the '252 patent as of the  
28 filing of this Complaint.

1           504. In violation of 35 U.S.C. § 271(a), Alphatec has and continues to  
2 directly infringe the '252 patent.

3           505. In particular, and without limitation, Alphatec directly infringes the  
4 '252 patent by making, using, selling, offering for sale, and/or importing into the  
5 United States products and systems including, but not limited to the Battalion™  
6 Lateral Spacer which is a component of the Battalion™ Lateral System, without  
7 the permission of NuVasive.

8           506. Alphatec has and continues to apply the patented design of the '252  
9 patent, and/or a colorable imitation thereof, to the Battalion™ Lateral Spacer for  
10 the purpose of sale, without the permission of NuVasive.

11           507. Alphatec has and continues to sell or expose for sale the Battalion™  
12 Lateral Spacer to which the patented design of the '252 patent, and/or a colorable  
13 imitation thereof, has been applied.

14           508. Alphatec is liable to NuVasive to the extent of Alphatec's total profit  
15 pursuant to 35 U.S.C. § 289.

16           509. An ordinary observer, familiar with the prior art, giving such attention  
17 as a purchaser usually gives, would be deceived by the resemblance and substantial  
18 similarity of the design of the Battalion™ Lateral Spacer and the claimed design in  
19 the '252 patent, and would thus be induced to purchase one supposing it to be the  
20 other, taking into account that the scope of a design patent claim does not cover  
21 functional features, that broken lines form no part of the claimed design, and  
22 unclaimed features are irrelevant.

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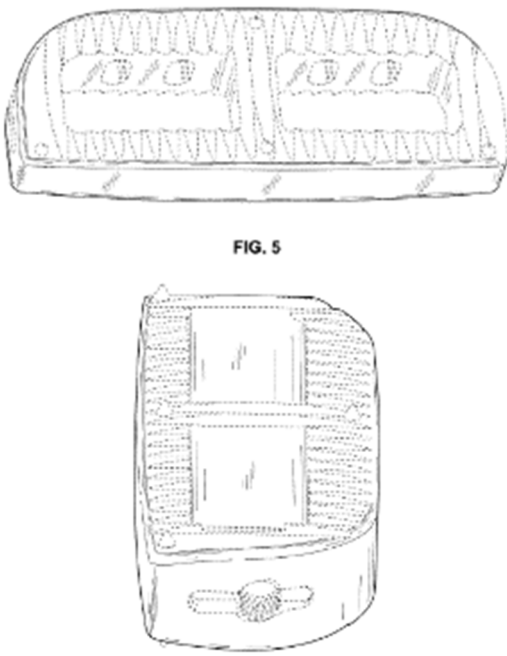

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'252 Patent	Battalion™ Lateral Spacer
 <p>FIG. 5</p> <p>FIG. 7</p>	 <p>Ex. V at 1.</p>

510. Unless enjoined by this Court, Alphatec will continue to infringe one or more claims of the '252 patent, and NuVasive will continue to suffer irreparable harm for which there is no adequate remedy at law. Accordingly, NuVasive is entitled to preliminary and permanent injunctive relief against such infringement pursuant to 35 U.S.C. § 283.

511. As a result of Alphatec's infringement of the claim of the '252 patent, NuVasive has been and continues to be injured in its business and property rights, and is entitled to recover damages for such injuries pursuant to 35 U.S.C. § 284 in an amount to be determined at trial. As a further result of Alphatec's infringement of the claim of the '252 patent, Alphatec is liable to NuVasive to the extent of its total profit pursuant to 35 U.S.C. § 289.

512. On information and belief, at all times that infringement has occurred or will occur, Alphatec had and has actual and/or constructive knowledge of the '252 patent.

1           513. On information and belief, Alphatec’s infringement of the claim of the  
2 ’252 patent is willful, deliberate, and egregious. Accordingly, NuVasive is entitled  
3 to enhanced damages pursuant to 35 U.S.C. § 284 and to an award of attorney’s  
4 fees and costs incurred in prosecuting this action pursuant to 35 U.S.C. § 285.

5 **XI. EIGHTH CAUSE OF ACTION — Infringement of U.S. Design Patent**  
6 **No. D652,519**

7           514. NuVasive repeats and realleges the allegations of paragraphs 1  
8 through 513 in their entirety.

9           515. On January 17, 2012, the United States Patent and Trademark Office  
10 duly and legally issued U.S. Design Patent No. D652,519 (“the ’519 patent”),  
11 entitled “Dilator,” to Patrick Miles, Scot Martinelli, and Eric Finley. A true and  
12 correct copy of the ’519 patent is attached hereto as Exhibit AO.

13           516. At all relevant times, NuVasive is and has been the owner, by valid  
14 assignment, of all right, title, and interest in and to the ’519 patent.

15           517. On information and belief, Alphatec had knowledge of the ’519 patent  
16 prior to the filing of this Complaint.

17           518. On information and belief, Alphatec has been monitoring and  
18 continues to monitor NuVasive’s patent portfolio, including patents and  
19 applications that are directed to lateral, transposoas spinal procedures, systems, and  
20 devices, such as the ’519 patent.

21           519. On information and belief, Alphatec gained knowledge of the ’519  
22 patent through its privity relationship with Mr. Miles, which formed at least as  
23 early as October 2, 2017.

24           520. Mr. Miles is a named inventor of the ’519 patent and therefore had  
25 and continues to have knowledge of the ’519 patent.

26           521. A privity relationship between Alphatec and Mr. Miles formed at least  
27 as early as October 2, 2017, when Mr. Miles joined Alphatec as its Executive  
28 Chairman.

1           522. Alphatec continues to be in privity with Mr. Miles.

2           523. Upon the formation of Alphatec's privity relationship with Mr. Miles,  
3 Alphatec was imputed with, and continues to be imputed with, Mr. Miles'  
4 knowledge of the '519 patent.

5           524. Alphatec has and continues to avail itself of Mr. Miles' knowledge  
6 and assistance to infringe the '519 patent, which Mr. Miles had assigned to  
7 NuVasive.

8           525. At the very least, Alphatec has knowledge of the '519 patent as of the  
9 filing of this Complaint.

10          526. In violation of 35 U.S.C. § 271(a), Alphatec has and continues to  
11 directly infringe the '519 patent.

12          527. In particular, and without limitation, Alphatec directly infringes the  
13 '519 patent, by making, using, selling, offering for sale, and/or importing into the  
14 United States products and systems including, but not limited to, the Initial Dilator  
15 which is a component of the Battalion™ Lateral System ("the Battalion™ Initial  
16 Dilator), without the permission of NuVasive.

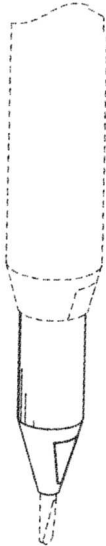
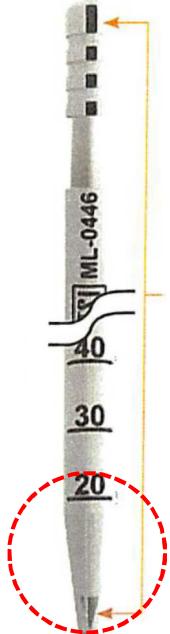
17          528. Alphatec has and continues to apply the patented design of the '519  
18 patent, and/or a colorable imitation thereof, to the Battalion™ Initial Dilator for the  
19 purpose of sale, without the permission of NuVasive.

20          529. Alphatec has and continues to sell or expose for sale the Battalion™  
21 Initial Dilator to which the patented design of the '519 patent, and/or a colorable  
22 imitation thereof, has been applied.

23          530. Alphatec is liable to NuVasive to the extent of Alphatec's total profit  
24 pursuant to 35 U.S.C. § 289.

25          531. An ordinary observer, familiar with the prior art, giving such attention  
26 as a purchaser usually gives, would be deceived by the resemblance and substantial  
27 similarity of the design of the Battalion™ Initial Dilator and the claimed design in  
28 the '519 patent, and would thus be induced to purchase one supposing it to be the

1 other, taking into account that the scope of a design patent claim does not cover  
2 functional features, that broken lines form no part of the claimed design, and that  
3 unclaimed features are irrelevant.

'519 Patent	Battalion™ Initial Dilator
	 <p data-bbox="899 1136 1464 1171">Ex. U (Alphatec Surgical Guide) at 5.</p>

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17 532. Unless enjoined by this Court, Alphatec will continue to infringe one  
18 or more claims of the '519 patent, and NuVasive will continue to suffer irreparable  
19 harm for which there is no adequate remedy at law. Accordingly, NuVasive is  
20 entitled to preliminary and permanent injunctive relief against such infringement  
21 pursuant to 35 U.S.C. § 283.

22 533. As a result of Alphatec's infringement of the claim of the '519 patent,  
23 NuVasive has been and continues to be injured in its business and property rights,  
24 and is entitled to recover damages for such injuries pursuant to 35 U.S.C. § 284 in  
25 an amount to be determined at trial. As a further result of Alphatec's infringement  
26 of the claim of the '519 patent, Alphatec is liable to NuVasive to the extent of its  
27 total profit pursuant to 35 U.S.C. § 289.

28



1           b.       Declaring that Alphatec has willfully infringed each of the NuVasive  
2 Patents;

3           c.       Preliminarily and permanently enjoining Alphatec, its officers,  
4 partners, employees, agents, parents, subsidiaries, attorneys, and anyone acting in  
5 concert or participation with any of them, from further infringing, contributing to  
6 and/or inducing the infringement of each of the NuVasive Patents, in accordance  
7 with 35 U.S.C. § 283.

8           d.       Awarding NuVasive damages in lost profits, price erosion and/or  
9 reasonable royalty an amount adequate to compensate NuVasive for Alphatec's  
10 infringement, in accordance with 35 U.S.C. § 284;

11          e.       Awarding NuVasive damages in the form Alphatec's profits in  
12 accordance with 35 U.S.C. § 289;

13          f.       Awarding NuVasive treble damages based on Alphatec's willful  
14 infringement of the NuVasive Patents, in accordance with 35 U.S.C. § 284;

15          g.       Awarding NuVasive attorney's fees and costs incurred by NuVasive  
16 in accordance with 35 U.S.C. § 285; and

17          h.       Granting such other and further relief as this Court may deem just and  
18 appropriate.

19

20 Dated: February 13, 2018

WILSON SONSINI GOODRICH & ROSATI PC

21

By: /s/ Paul D. Tripodi II

22

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1 **DEMAND FOR JURY TRIAL**

2 Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, plaintiff  
3 NuVasive, Inc. demands a trial by jury of this action.  
4

5 Dated: February 13, 2018 WILSON SONSINI GOODRICH & ROSATI PC

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