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**CD HORIZON® Spinal System**  
**510(k) Summary**  
**June 6, 2012**

JUL 5 2012

- I. Company:** Medtronic Sofamor Danek USA, Inc.  
1800 Pyramid Place  
Memphis, TN 38132  
(901) 396-3133
- Contact:** Chris McKee  
Sr. Regulatory Affairs Specialist
- II. Proprietary Trade Name:** CD HORIZON® Spinal System
- III. Classification Name:** Spinal Interlaminar Fixation Orthosis, Spinal Intervertebral Body Fixation Orthosis, and Pedicle Screw Spinal System (21 CFR 888.3050, 888.3060 and 888.3070)
- IV. Classification:** Class III (Pre-amendment)
- V. Product Codes:** KWP, KWQ, MNH, MNI, NKB and OSH
- VI. Product Description**

The CD HORIZON® Spinal System consists of a variety of shapes and sizes of rods, hooks, screws, **CROSSLINK®** Plates, staples and connecting components, as well as implant components from other Medtronic spinal systems, which can be rigidly locked into a variety of configurations, with each construct being tailor-made for the individual case.

A subset of CD HORIZON® Spinal System components may be used for posterior pedicle screw fixation in pediatric cases. These constructs may be comprised of a variety of shapes and sizes of rods (ranging in diameter from 3.5mm to 6.35mm), hooks, screws, **CROSSLINK®** Plates, and connecting components. Similarly to the CD HORIZON® implants used in adult cases, these components can be rigidly locked into a variety of configurations, with each construct being tailor-made for the individual case.

Certain components within the CD HORIZON® Spinal System are specifically excluded for use in pediatric patients. These include PEEK rods, Shape Memory Alloy Staples, **SPIRE™** Plates and **DYNALOK®** bolts. All screws used in pediatric cases are only cleared for use via a posterior approach. All of the components used in pediatric cases are fabricated from medical grade stainless steel, medical grade titanium, titanium alloy, and medical grade cobalt-chromium-molybdenum alloy.

Certain implant components from other Medtronic spinal systems can be used with the CD HORIZON® Spinal System in non-pediatric cases. These components include **TSRH®** rods, hooks, screws, plates, **CROSSLINK®** plates, connectors, staples, washers, **GDLH®** rods, hooks, connectors and **CROSSLINK®** bar and connectors; **LIBERTY®** rods and screws; **DYNALOK® PLUS** and **DYNALOK CLASSIC®** bolts along with rod/bolt connectors; and Medtronic Multi-Axial rods and screws. Please note that certain

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components are specifically designed to connect to specific rod diameters, while other components can connect to multiple rod diameters. Care should be taken so that the correct components are used in the spinal construct.

CD HORIZON® hooks are intended for posterior use only. CD HORIZON® staples and CD HORIZON® ECLIPSE® rods and associated screws are intended for anterior use only. However, for patients of smaller stature and pediatric patients, CD HORIZON® 4.5mm rods and associated components may be used posteriorly.

The CD HORIZON® Spinal System implant components are fabricated from medical grade stainless steel, medical grade titanium, titanium alloy, medical grade cobalt-chromium-molybdenum alloy, or medical grade PEEK OPTIMA-LT1. Certain CD HORIZON® Spinal System components may be coated with hydroxyapatite. No warranties expressed or implied are made. Implied warranties of merchantability and fitness for a particular purpose or use are specifically excluded. See the MDT Catalog for further information about warranties and limitations of liability.

**Never use stainless steel and titanium implant components in the same construct.**

Medical grade titanium, titanium alloy, and/or medical grade cobalt-chromium-molybdenum alloy may be used together. Never use titanium, titanium alloy, and/or medical grade cobalt-chromium-molybdenum alloy with stainless steel in the same construct.

The CD HORIZON® Spinal System also includes anterior staples made of Shape Memory Alloy (Nitinol – NiTi). Shape Memory Alloy is compatible with titanium, titanium alloy, and cobalt-chromium-molybdenum alloy. Do not use with stainless steel. These staples are not to be used in pediatric patients.

PEEK OPTIMA-LT1 implants may be used with stainless steel, titanium, or cobalt-chromium-molybdenum alloy implants. CD HORIZON® PEEK Rods are not to be used with CROSSLINK® Plates or in pediatric patients.

To achieve best results, do not use any of the CD HORIZON® Spinal System implant components with components from any other system or manufacturer unless specifically allowed to do so in this or another Medtronic document. As with all orthopaedic and neurosurgical implants, none of the CD HORIZON® Spinal System components should ever be reused under any circumstances.

The purpose of this 510(k) was to add additional components to the system, namely SOLERA™ LONGITUDE® 4.75mm, 5.5mm and 6.0mm diameter rods, 6.0mm diameter commercially pure titanium rods and longer CHROMALOY™ Plus 5.5mm and 6.0mm diameter rods. The rods are manufactured out of commercially pure titanium and cobalt-chromium-molybdenum alloy.

## VII.

### Indications

The CD HORIZON® Spinal System with or without SEXTANT® instrumentation is intended for posterior, non-cervical fixation as an adjunct to fusion for the following indications: degenerative disc disease (defined as back pain of discogenic origin with

degeneration of the disc confirmed by history and radiographic studies); spondylolisthesis; trauma (i.e., fracture or dislocation); spinal stenosis; curvatures (i.e., scoliosis, kyphosis and/or lordosis); tumor; pseudarthrosis; and/or failed previous fusion.

Except for hooks, when used as an anterolateral thoracic/lumbar system, the CD HORIZON® Spinal System may also be used for the same indications as an adjunct to fusion.

With the exception of degenerative disc disease, the CD HORIZON® LEGACY™ 3.5mm rods and the CD HORIZON® Spinal System PEEK rods and associated components may be used for the aforementioned indications in skeletally mature patients as an adjunct to fusion. The 3.5mm rods may be used for the specific pediatric indications noted below.

When used for posterior non-cervical pedicle screw fixation in pediatric patients, the CD HORIZON® Spinal System implants are indicated as an adjunct to fusion to treat adolescent idiopathic scoliosis. Additionally, the CD HORIZON® Spinal System is intended to treat pediatric patients diagnosed with the following conditions: spondylolisthesis/spondylolysis and fracture caused by tumor and/or trauma. These devices are to be used with autograft and/or allograft. Pediatric pedicle screw fixation is limited to a posterior approach.

The CD HORIZON® SPIRE™ Plate is a posterior, single level, non-pedicle supplemental fixation device intended for use in the non-cervical spine (T1-S1) as an adjunct to fusion in skeletally mature patients. It is intended for plate fixation/attachment to spinous processes for the purpose of achieving supplemental fixation in the following conditions: degenerative disc disease (as previously defined); spondylolisthesis; trauma; and/or tumor.

In order to achieve additional levels of fixation, the CD HORIZON® Spinal System rods may be connected to the VERTEX® Reconstruction System with the VERTEX® rod connector. Refer to the VERTEX® Reconstruction System Package Insert for a list of the VERTEX® indications of use.

#### **VIII. Summary of the Technological Characteristics**

The subject SOLERA™ LONGITUDE® rods have been modified to be compatible with the CD HORIZON® LONGITUDE® and SOLERA™ SEXTANT® inserters to aid in percutaneous implantation into the corresponding screws. The sizes and materials are the same as the predicate devices.

The subject commercially pure titanium rod has been modified to be a 6.0mm diameter. The length and material is identical to the predicate devices.

The subject CHROMALOY™ Plus rods have been modified to be available in longer lengths. The diameters and material are the same as the predicate devices.

#### **IX. Identification of Legally Marketed Devices**

The design features, materials and indications for use of the subject devices are substantially equivalent to the predicate CD HORIZON® SOLERA™ 5.5/6.0mm diameter rods (K113174 SE 11/21/11 ), CD HORIZON® SOLERA™ 4.75mm rods

(K091974 SE 09/02/09), CD HORIZON® SOLERA™ SEXTANT® 4.75mm rods (K102807 SE 11/17/10), CD HORIZON® LONGITUDE® 5.5mm diameter rods (K052747 SE 11/01/05), and CD HORIZON® screws for use with 4.5mm and 5.5mm rods (K042025 SE 08/25/04).

The labeling is identical to that cleared in K113529.

**X. Discussion of the Non-Clinical Testing**

Non-clinical testing in the form of mechanical testing was performed on the worst case subject devices in the form of interconnection testing in accordance with ASTM F1798. The results were compared to the previously listed predicate devices. Test methods included the following:

ASTM F1798

- Axial Grip
- Axial Torsion
- Static Flexion/Extension
- Flexion/Extension Fatigue

For all test methods, the subject devices met the pre-determined acceptance criteria.

Non-clinical testing in the form of mechanical testing was not required for the subject LONGITUDE® rods since the only difference between them and the predicate rods was the modified tip geometry for the purposes of attaching to the CD HORIZON® LONGITUDE® and SOLERA™ SEXTANT® rod inserters and to aid in percutaneous implantation.

Non-clinical testing in the form of mechanical testing was not required for the subject 5.5mm and 6.0mm diameter CHROMALOY™ Plus rods since the only difference between them and the predicate rods was their overall length.

**XI. Conclusions**

A risk analysis was completed and non-clinical mechanical testing was performed in accordance with ASTM F1798. Based on the test results and additional supporting documentation provided in this pre-market notification, the subject devices demonstrated substantial equivalence to the previously listed predicate devices.



Food and Drug Administration  
10903 New Hampshire Avenue  
Document Control Center - WO66-G609  
Silver Spring, MD 20993-0002

June 27, 2013

Medtronic Sofamor Danek USA, Inc.  
% Mr. Chris McKee  
Senior Regulatory Affairs Specialist  
1800 Pyramid Place  
Memphis, Tennessee 38132

Re: K121680  
Trade/Device Name: CD HORIZON Spinal System  
Regulation Number: 21 CFR 888.3070  
Regulation Name: Pedicle screw spinal system  
Regulatory Class: III  
Product Code: NKB, OSH, MNI, MNH, KWP, KWQ  
Dated: June 06, 2012  
Received: June 07, 2012

Dear Mr. McKee:

This letter corrects our substantially equivalent letter of July 5, 2012.

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration. Please note: CDRH does not evaluate information related to contract liability warranties. We remind you, however, that device labeling must be truthful and not misleading.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the Federal Register.

Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Part 801); medical device reporting (reporting of medical

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device-related adverse events) (21 CFR 803); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820); and if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

If you desire specific advice for your device on our labeling regulation (21 CFR Part 801), please contact the Division of Small Manufacturers, International and Consumer Assistance at its toll-free number (800) 638 2041 or (301) 796-7100 or at its Internet address <http://www.fda.gov/MedicalDevices/ResourcesforYou/Industry/default.htm>. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21CFR Part 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to <http://www.fda.gov/MedicalDevices/Safety/ReportaProblem/default.htm> for the CDRH's Office of Surveillance and Biometrics/Division of Postmarket Surveillance.

You may obtain other general information on your responsibilities under the Act from the Division of Small Manufacturers, International and Consumer Assistance at its toll-free number (800) 638-2041 or (301) 796-7100 or at its Internet address <http://www.fda.gov/MedicalDevices/ResourcesforYou/Industry/default.htm>.

Sincerely yours,

Erin D. Keith

For

Mark N. Melkerson  
Director  
Division of Orthopedic Devices  
Office of Device Evaluation  
Center for Devices and  
Radiological Health

Enclosure

K121680

**510(k) Number (if known):**

**Device Name:** CD HORIZON® Spinal System

**Indications for Use:**

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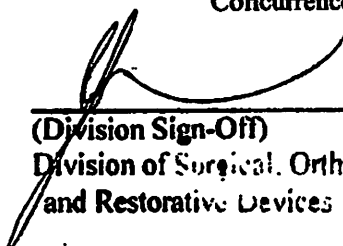
Prescription Use  X   
(Part 21 CFR 801 Subpart D)

AND/OR

Over-The-Counter Use \_\_\_\_\_  
(21 CFR Subpart C)

(PLEASE DO NOT WRITE BELOW THIS LINE – CONTINUE ON ANOTHER PAGE IF NEEDED)

Concurrence of CDRH, Office of Device Evaluation (ODE)

  
\_\_\_\_\_  
(Division Sign-Off)  
Division of Surgical, Orthopedic,  
and Restorative Devices

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