

March 11, 2022

Terrats Medical SL % Floyd Larson President PaxMed International, LLC 12264 El Camino Real, Suite 400 San Diego, California 92130

Re: K212628

Trade/Device Name: DESS Dental Smart Solutions

Regulation Number: 21 CFR 872.3630

Regulation Name: Endosseous Dental Implant Abutment

Regulatory Class: Class II Product Code: NHA Dated: February 8, 2022 Received: February 9, 2022

Dear Floyd Larson:

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. Although this letter refers to your product as a device, please be aware that some cleared products may instead be combination products. The 510(k) Premarket Notification Database located at https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfpmn/pmn.cfm identifies combination product submissions. 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 <u>Federal Register</u>.

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 device-related adverse events) (21 CFR 803) for devices or postmarketing safety reporting (21 CFR 4, Subpart B) for combination products (see https://www.fda.gov/combination-products/guidance-regulatory-information/postmarketing-safety-reporting-combination-products); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820) for devices or current good manufacturing practices (21 CFR 4, Subpart A) for combination products; and, if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21 CFR Part 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to https://www.fda.gov/medical-device-problems.

For comprehensive regulatory information about medical devices and radiation-emitting products, including information about labeling regulations, please see Device Advice (https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance) and CDRH Learn (https://www.fda.gov/training-and-continuing-education/cdrh-learn). Additionally, you may contact the Division of Industry and Consumer Education (DICE) to ask a question about a specific regulatory topic. See the DICE website (https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance/contact-us-division-industry-and-consumer-education-dice">https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance/contact-us-division-industry-and-consumer-education-dice) for more information or contact DICE by email (DICE@fda.hhs.gov) or phone (1-800-638-2041 or 301-796-7100).

Sincerely,

Andrew I. Steen
Assistant Director
DHT1B: Division of Dental and ENT Devices
OHT1: Office of Ophthalmic, Anesthesia,
Respiratory, ENT and Dental Devices
Office of Product Evaluation and Quality
Center for Devices and Radiological Health

Enclosure

DEPARTMENT OF HEALTH AND HUMAN SERVICES Food and Drug Administration

Indications for Use

Form Approved: OMB No. 0910-0120 Expiration Date: 06/30/2023

Expiration Date: 06/30/2023 See PRA Statement below.

510(k) Number (if known)

K212628

Device Name

DESS Dental Smart Solutions

Indications for Use (Describe)

DESS Dental Smart Solutions abutments are intended to be used in conjunction with endosseous dental implants in the maxillary or mandibular arch to provide support for prosthetic restorations.

All digitally designed custom abutments for use with DESS Bases or Blanks are to be sent to a Terrats Medical validated milling center for manufacture.

Compatible Implant Systems

Compatible Implant System	Implant Body Diameter, mm	Implant Platform Name
	3.0	3.0
	3.6	3.6
Astra Tech EV	4.2	4.2
	4.8	4.8
	5.4	5.4
	3.0	3.0
Astra Tech OsseoSpeed TM	3.5/4.0	3.5/4.0
	4.5/5.0	4.5/5.0
	3.0, 3.4, 3.8	3.0
BioHorizons	3.8, 4.6	3.5
Bioriorizons	4.6, 5.8	4.5
	5.8	5.7
_	3.25	3.4
Biomet 3i Certain®	4.0	4.1
	5.0	5.0
	3.25	3.4
Biomet 3i OSSEOTITE®	3.75, 4.0	4.1
	5.0	5.0
	3.8	3.8
Camlog	4.3	4.3
	5.0	5.0
	3.8	3.8
FRIADENT XiVE®	4.5	4.5
	5.5	5.5
Neodent Grand Morse	3.5, 3.75, 4.0, 4.3, 5.0, 6.0, 7.0	Grand Morse (GM)
	3.0	3.0
NobelActive®, NobelParallel Conical	3.5	NP
	4.3, 5.0	RP
	4.3	RP
NobelReplace® Trilobe	5.0	WP
	6.0	6.0
Nobel Brånemark System®	3.3	NP
1.0001 Dianomark Oystem	3.75, 4.0	RP
Osstem TS	3.5	Mini
3555	4.0, 4.5, 5.0, 6.0, 7.0	Regular
Straumann BLX	3.5, 3.75, 4.0, 4.5	RB
Curvinia DD11	5.0, 5.5, 6.5	WB
Straumann® Bone Level	3.3	NC
	4.1/4.8	RC
Straumann® Tissue Level	3.3	NNC
Zimmer Screw Vent®/ Tapered Screw-	3.3, 3.7, 4.1	3.5
Vent®	4.7	4.5
	6.0	5.7

Type of Use	(Select one or b	oth, as applicable)
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Prescription Use (Part 21 CFR 801 Subpart D)

Over-The-Counter Use (21 CFR 801 Subpart C)

CONTINUE ON A SEPARATE PAGE IF NEEDED.

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510(k) Summary

Terrats Medical SL DESS® Dental Smart Solutions

March 10, 2022

ADMINISTRATIVE INFORMATION

Manufacturer Name Terrats Medical SL

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Barcelona, Spain

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DEVICE NAME AND CLASSIFICATION

Trade/Proprietary Name DESS Dental Smart Solutions
Common Name Dental implant abutment

Regulation Number 21 CFR 872.3630

Regulation Name Endosseous dental implant abutment

Regulatory Class II Product Code NHA

Classification Panel Dental Products Panel

Reviewing Division DHT1B: Division of Dental Devices

PREDICATE DEVICE INFORMATION

Primary Predicate Device

K170588, DESS Dental Smart Solutions, Terrats Medical SL

Reference Devices

K173908, DESS Dental Smart Solutions, Terrats Medical SL K191986, DESS Dental Smart Solutions, Terrats Medical SL

Reference Devices for New OEM Compatibilities

All compatibilities are identical to those of the primary predicate K170588 and the reference devices K173908 and K191986, except for the addition of compatibilities with three (3) new systems, seven (7) platforms, for BioHorizons, Neodent Grand Morse and Straumann BLX, and the addition of two (2) new platforms for Astra Tech EV previously cleared in K191986.

510(k)	Compatible Implant	Manufacturer
K111287, K120414	Astra Tech EV (Cleared as OsseoSpeed Plus)	Dentsply Sirona Inc.
K042429 K071638	BioHorizons	BioHorizons Implant Systems, Inc.
K163194	Neodent Grand Morse	JJGC Indústria e Comércio de Materiais Dentários S.A.
K173961	Straumann BLX	Institut Straumann AG

INDICATIONS FOR USE STATEMENT

DESS Dental Smart Solutions abutments are intended to be used in conjunction with endosseous dental implants in the maxillary or mandibular arch to provide support for prosthetic restorations.

All digitally designed custom abutments for use with DESS Bases or Blanks are to be sent to a Terrats Medical validated milling center for manufacture.

Compatible Implant Systems

Compatible Implant System	Implant Body Diameter, mm	Implant Platform Name
	3.0	3.0
	3.6	3.6
Astra Tech EV	4.2	4.2
	4.8	4.8
	5.4	5.4
	3.0	3.0
Astra Tech OsseoSpeed TM	3.5/4.0	3.5/4.0
	4.5/5.0	4.5/5.0
	3.0, 3.4, 3.8	3.0
BioHorizons	3.8, 4.6	3.5
Bioriorizons	4.6, 5.8	4.5
	5.8	5.7
	3.25	3.4
Biomet 3i Certain®	4.0	4.1
	5.0	5.0
	3.25	3.4
Biomet 3i OSSEOTITE®	3.75, 4.0	4.1
	5.0	5.0
	3.8	3.8
Camlog	4.3	4.3
	5.0	5.0
	3.8	3.8
FRIADENT XiVE®	4.5	4.5
	5.5	5.5
Neodent Grand Morse	3.5, 3.75, 4.0, 4.3, 5.0, 6.0, 7.0	Grand Morse (GM)

Compatible Implant System	Implant Body Diameter, mm	Implant Platform Name
NI-1-14-4	3.0	3.0
NobelActive®, NobelParallel Conical	3.5	NP
Conicar	4.3, 5.0	RP
	4.3	RP
NobelReplace® Trilobe	5.0	WP
	6.0	6.0
Nahal Dassanania Caratana®	3.3	NP
Nobel Brånemark System®	3.75, 4.0	RP
O 4 TG	3.5	Mini
Osstem TS	4.0, 4.5, 5.0, 6.0, 7.0	Regular
Ct DI V	3.5, 3.75, 4.0, 4.5	RB
Straumann BLX	5.0, 5.5, 6.5	WB
Straumann® Bone Level	3.3	NC
Straumann Bone Level	4.1/4.8	RC
Straumann® Tissue Level	3.3	NNC
7:	3.3, 3.7, 4.1	3.5
Zimmer Screw Vent®/ Tapered Screw-Vent®	4.7	4.5
screw-vent	6.0	5.7

SUBJECT DEVICE DESCRIPTION

The purpose of this submission is to expand the DESS Dental Smart Solutions abutment system cleared under K170588, K173908 and K191986 to add additional components for previously cleared OEM platform compatibilities and to add additional OEM platform compatibilities for previously cleared DESS designs. This submission includes three (3) abutments (Healing Abutments, straight Multi Unit Abutments and DESSLoc Abutments), three (3) bases, two (2) blanks, and seven (7) screws.

Among the subject devices for this submission are abutments and screws compatible with three (3) implant systems for which Terrats Medical has no prior clearance and one (1) implant system for which new platform compatibilities are included, for a total of nine (9) new platforms.

The direct correlation between each subject device design and the corresponding compatible implant platforms is shown in the table *Summary of Subject Device Components and Implant Platforms for Compatible Implant Systems*. The subject device DESS Dental Smart Solutions provides a range of prosthetic solutions for dental implant restoration. DESS abutments, bases and blanks are offered in a variety of connection types to enable compatibility with currently marketed dental implants. All abutments are provided non-sterile and each abutment is supplied with the appropriate abutment screw (if applicable) for attachment to the corresponding implant.

Healing Abutment

Healing Abutments are designed to cover the implant connection during the period between implant placement and final abutment placement. Healing Abutments are provided in multiple gingival heights to aid in contouring the gingiva during healing. All healing abutments are marked to identify their gingival height and compatible implant platform. Healing abutments are made of titanium alloy (Ti-6Al-4V). Healing abutments that are the subject of this submission are identical to those cleared under K170588 but are provided for four (4) additional platform compatibilities.

Ti Bases

Subject device Ti Bases, including Ti Base Interface, DESS Aurum Base and ELLIPTIBase, are designed for custom abutment fabrication of a CAD/CAM zirconia superstructure on which a crown may be placed. They are two-piece abutments for which the second part (or top half) is the ceramic superstructure. They also may be used for support of a crown directly on the abutment.

All patient-specific custom abutment fabrication for Ti Bases (Ti Base Interface, DESS Aurum Base and ELLIPTIBase) is by prescription on the order of the clinician. All zirconia superstructures for use with the subject device Ti Base Interface, DESS Aurum Base and ELLIPTIBase will be made at a Terrats Medical validated milling center under FDA quality system regulations, and the material will conform to ISO 13356 *Implants for surgery – Ceramic materials based on yttria-stabilized tetragonal zirconia (Y-TZP)*.

The design parameters for the CAD/CAM zirconia superstructure to be used on Ti Base Interface are identical to those cleared in K170588. They are:

Minimum wall thickness -0.4 mm Minimum post height -4.2 mm

Minimum gingival height – 0.5 mm

Maximum gingival height – 6.0 mm

All zirconia superstructures are for straight abutments only.

Summary of Subject Device Components and Implant Platforms for Compatible Implant Systems

		•			-					=		
Compatible Implant Systems	DESS Abutment System	Healing Abutment	Ti Base Interface, Engaging	Ti Base Interface, Non-engaging	DESS Aurum Base, Engaging	DESS Aurum Base, Non-engaging	ELLIPTIBase, Engaging	Pre-milled Blank Ti, Engaging	Pre-milled Blank CrCo, Engaging	Multi Unit Abutment	DESSLoc Abutment	Screws
Description: See Section 10.1.x	J	10.1.1		I	10.1.2	I.	I.	10.1.3		10.1.4	10.1.5	10.1.6
Astra Tech EV	Conic EVO	3.0, 5.4	5.4	5.4			3.0	3.0, 3.6, 4.2, 4.8, 5.4	5.4	3.6, 4.2, 4.8		
Astra Tech OsseoSpeed	Internal Hex Conic		3.0, 3.5/4.0, 4.5/5.0	3.0, 3.5/4.0, 4.5/5.0				3.0, 3.5/4.0, 4.5/5.0		3.5/4.0, 4.5/5.0		
BioHorizons Internal	BH Internal		3.5, 4.5, 5.7	3.5, 4.5, 5.7	3.5, 4.5, 5.7	3.5, 4.5, 5.7	3.0	3.5, 4.5, 5.7				X
Biomet 3i Certain	Internal Hex Click							4.1, 5.0			3.4, 4.1, 5.0	
Biomet 3i OSSEOTITE	External Hex USA				3.4, 4.1	3.4, 4.1					3.4, 4.1, 5.0	
Camlog	Internal CAM							3.8, 4.3, 5.0				
FRIADENT XiVE	Internal Hex FD							3.8, 4.5, 5.5	5.5			
Neodent Grand Morse	Neo GM		Grand Morse	Grand Morse	Grand Morse	Grand Morse		Grand Morse	Grand Morse	Grand Morse		X
NobelActive, NobelParallel Conical	Active Hex		NP, RP	NP, RP			3.0					X
NobelReplace Trilobe	Tri-lobe							RP, WP, 6.0				
Nobel Branemark System	External Hex Universal				NP, RP	NP, RP						
Osstem TS	Conic OSS							Mini, Regular				
Straumann BLX	Conical BLX	RB/WB, WB	RB/WB, WB	RB/WB, WB	RB/WB, WB	RB/WB, WB		RB/WB, WB	WB	RB/WB		X
Straumann Bone Level	Conical BL		NC, RC	NC, RC			NC					
Straumann Tissue Level	Octagon						NNC		NNC			
Zimmer Screw Vent / Tapered Screw Vent	Internal Hex USA						3.5				3.5, 4.5, 5.7	

DESS Aurum Base is available in an engaging design and a non-engaging design and ELLIPTIBase is available in an engaging design. Before attachment of the zirconia superstructure or crown, the DESS Aurum Base and ELLIPTIBase post height is 3.0 mm. When used for a single-unit restoration the DESS Aurum Base and ELLIPTIBase are to be used with a superstructure to create a minimum post height of 4.0 mm. DESS Aurum Base and ELLIPTIBase are made of titanium alloy (Ti-6Al-4V) with a gold anodized surface.

Design of ELLIPTIBase is similar to that of Ti Base (DESS Aurum) cleared in K173908, except that the post portion is not rotationally symmetric, being elliptical in cross-section.

When the DESS Aurum Base or ELLIPTIBase is used with a zirconia superstructure, design parameters for the zirconia superstructure are:

Minimum wall thickness -0.4 mm

Minimum post height for single-unit restorations – 4.0 mm

Minimum gingival height – 0.5 mm

Maximum gingival height – 6.0 mm

All zirconia superstructures are for straight abutments only.

Pre-milled Blank Ti and Pre-milled Blank CrCo

Pre-milled Blanks are designed for custom abutment fabrication by a CAD/CAM process and are available in an engaging design. All patient-specific custom abutment fabrication is by prescription on the order of the clinician. Pre-milled Blank is made of titanium alloy (Ti-6Al-4V) or of Co-Cr-Mo Alloy (CrCo).

The design parameters for the CAD/CAM fabrication of custom abutments from Pre-milled Blank Ti and Pre-milled Blank CrCo are:

Minimum wall thickness – 0.45 mm

Minimum post height for single-unit restorations – 4.0 mm

Minimum gingival height -0.5 mm

Maximum gingival height – 6.0 mm

All Pre-milled Blank Ti and Pre-milled Blank CrCo are for straight abutments only.

Manufacture of CAD/CAM custom abutments from Pre-milled Blank Ti and Pre-milled Blank CrCo is to be performed at a Terrats Medical validated milling center.

Multi Unit Abutment

Multi Unit Abutment is designed for attachment of multi-unit screw-retained restorations and is provided in a straight design. Dedicated titanium alloy screws coated with Diamond-like carbon (DLC) are available to attach the abutment to the implant and a dedicated titanium alloy prosthetic screw is available to attach the restoration to the abutment.

DESSLoc® Abutment

DESSLoc Abutment is designed for overdenture attachment. It is identical to the DESS LOC Abutment cleared in K170588, except that additional gingival heights are provided. DESSLoc Abutments are made of titanium alloy (Ti-6Al-4V) and have a zirconium nitride (ZrN) coating.

Screws

DESS Dental Smart Solutions screws are designed to attach the abutment to the implant or the prosthesis to the abutment. For previously cleared compatibilities, the screws that were cleared in K170588, K173908 and K191986 for each compatibility are used. For new compatibilities, four (4)

subject device screws are included. Screws are available with and without a DLC (Diamond-like Carbon) coating.

MATERIAL COMPOSITION

All subject device abutments and screws are made of titanium alloy conforming to ASTM F136 Standard Specification for Wrought Titanium-6Aluminum-4Vanadium ELI (Extra Low Interstitial) Alloy for Surgical Implant Applications (UNS R56401) or from Co-Cr-Mo alloy conforming to ASTM F1537 Standard Specification for Wrought Cobalt-28Chromium-6Molybdenum Alloys for Surgical Implants (UNS R31537, UNS R31538, and UNS R31539). Zirconia superstructures for Ti Base Interface, DESS Aurum Base and ELLIPTIBase are made of Y-TZP conforming to ISO 13356 Implants for surgery – Ceramic materials based on yttria-stabilized tetragonal zirconia (Y-TZP). The cement recommended in labeling for bonding of superstructures is Multi-Link cement from Ivoclar Vivadent, cleared under K130436. All of these materials are identical to those of the primary predicate device K170588 and the reference devices K173908 and K191986.

PERFORMANCE DATA

Non-clinical data submitted to demonstrate substantial equivalence included: sterilization validation according to ISO 17665-1 and ISO 14937, leveraged from K170588; biocompatibility according to ISO 10993-5 and ISO 10993-12, leveraged from K170588, K173908 and K191986; and reverse engineering analysis of OEM implant bodies, OEM abutments, and OEM abutment screws to confirm compatibility. No clinical data were included in this submission.

EQUIVALENCE TO MARKETED DEVICES

The subject device is substantially equivalent in indications and design principles to the primary predicate device and the reference devices listed above. Provided at the end of this summary are tables comparing the Indications for Use Statements and the technological characteristics of the subject device, the primary predicate device, and the reference devices.

Subject device abutments are substantially equivalent in intended use to the primary predicate device cleared in K170588 and the reference devices cleared in K173908 and K191986. All are intended for use with endosseous dental implants in the maxilla and mandible to provide functional and esthetic rehabilitation of the edentulous maxilla and mandible. The Indications for Use Statement (IFUS) for the subject device is substantially equivalent to that of the primary predicate K170588, except for the list of compatible OEM implants.

All subject device abutments are identical in design, materials and technological characteristics to those of the primary predicate K170588 and the reference devices K173908 and K191986, except for variations in gingival height and the elliptical shape of the ELLIPTIBase post. Abutments with gingival heights of 1.5 mm, 3.0 mm and greater are in common use in dental implant systems such as compatible system Astra Tech EV, cleared in K111287. Subject device DESS Aurum Base is identical in design, materials and technological characteristics to Aurum Abutments cleared in reference device K173908. The SelectGrip® surface on all Ti Bases is identical to the SelectGrip surface on equivalent abutments cleared in primary predicate K170588 and reference devices K173908 and K191986. The gold anodized surface on Ti Base (DESS Aurum) is identical to the anodized surface on Aurum Abutments of the reference device K173908. The ZrN coating on DESSLoc is identical to that on DESS LOC Abutments cleared in primary predicate K170588.

All screws are identical in design, materials and technological characteristics to those cleared in primary predicate K170588 except for threads that accommodate the new compatibilities. Diamond-like carbon (DLC) coatings on screws are identical to those on screws cleared in primary predicate K170588.

Substantial equivalence of new compatibilities is supported by compatibility analysis.

Digital files for all CAD/CAM superstructures or abutments from blanks must be sent to a validated milling center for manufacture. DESS Ti Base Interface, DESS Aurum Base, ELLIPTIBase and Premilled Blanks are for fabrication of straight custom abutments only.

The subject device is to be sterilized by the end-user, the same as primary predicate device K170588 and reference devices K173908 and K191986.

All of the subject device components are manufactured from the same materials and in the same facilities using the same manufacturing processes as used for the Terrats Medical components previously cleared in K170588, K173908 and K191986. Therefore, no new biocompatibility testing has been performed, as the subject device is substantially equivalent to the predicate devices in K170588, K173908 and K191986 with regard to materials and processing.

Minor differences in the designs, dimensions, sizes, or compatible OEM implant lines among the subject device, the primary predicate device, and the reference devices do not affect substantial equivalence. These minor differences do not impact substantial equivalence because these differences are related to the compatible OEM implant designs.

CONCLUSION

The subject device, the primary predicate device, and the reference devices have the same intended use, have similar technological characteristics, and are made of the same materials. The subject device, the primary predicate, and reference devices encompass the same range of physical dimensions, are packaged in similar materials, and are to be sterilized using similar methods. The data included in this submission demonstrate substantial equivalence to the predicate devices listed above.

Table of Substantial Equivalence – Indications for Use Statement

	Indications for Use Stateme	nt				
Subject Device	DESS Dental Smart Solutions abutments are intended to be used in conjunction with endosseous dental implants in the maxillary or mandibular arch to provide support for prosthetic restorations.					
DESS Dental Smart Solutions	All digitally designed custom abutments for use with DESS Bases or Blanks are to be sent to a Terrats Medical validated milling center for manufacture. Compatible Implant Systems					
	Compatible Implant System	Compatible Implant System				
		3.0	3.0			
Terrats Medical SL		3.6	3.6			
	Astra Tech EV	4.2	4.2			
		4.8	4.8			
		5.4	5.4			
		3.0	3.0			
	Astra Tech OsseoSpeed TM	3.5/4.0	3.5/4.0			
	1	4.5/5.0	4.5/5.0			
		3.0, 3.4, 3.8	3.0			
		3.8, 4.6	3.5			
	BioHorizons	4.6, 5.8	4.5			
		5.8	5.7			
		3.25	3.4			
	Biomet 3i Certain®	4.0	4.1			
	Biomet 31 cerum	5.0	5.0			
		3.25	3.4			
	Biomet 3i OSSEOTITE®	3.75, 4.0	4.1			
	Bioinet 31 OSSEOTTE	5.0	5.0			
		3.8	3.8			
	Camlag	4.3	4.3			
	Camlog	5.0	5.0			
	EDIA DENTE VIVE®	3.8	3.8			
	FRIADENT XiVE®	4.5	4.5			
	N. 1 (C. 1)	5.5	5.5			
	Neodent Grand Morse	3.5, 3.75, 4.0, 4.3, 5.0, 6.0, 7.0	Grand Morse (GM)			
	NobelActive®, NobelParallel	3.0	3.0			
	Conical	3.5	NP			
		4.3, 5.0	RP			
	N. 1. ID. 1. R.T. 1.	4.3	RP			
	NobelReplace® Trilobe	5.0	WP			
		6.0	6.0			
	Nobel Brånemark System®	3.3	NP			
		3.75, 4.0	RP			
	Osstem TS	3.5	Mini			
		4.0, 4.5, 5.0, 6.0, 7.0	Regular			
	Straumann BLX	3.5, 3.75, 4.0, 4.5	RB			
		5.0, 5.5, 6.5	WB			
	Straumann® Bone Level	3.3	NC P.G			
		4.1/4.8	RC			
	Straumann® Tissue Level	3.3	NNC			
	Zimmer Screw Vent®/ Tapered	3.3, 3.7, 4.1	3.5			
1	Screw-Vent®	4.7	4.5			
		6.0	5.7			

Primary Predicate Device

DESS Dental Smart Solutions abutments are intended to be used in conjunction with endosseous dental implants in the maxillary or mandibular arch to provide support for prosthetic restorations.

K170588, DESS Dental Smart Solutions Terrats Medical SL All digitally designed custom abutments for use with TiBase or Pre-milled Blank are to be sent to a Terrats Medical validated milling center for manufacture.

Compatible Implant Systems

Implant System Compatibility	Implant Diameter (mm)	Platform Diameter (mm)
3i Certain®	3.25, 4.0, 5.0	3.4, 4.1, 5.0
3i OSSEOTITE®	3.25, 3.75, 4.0, 5.0	3.4, 4.1, 5.0
OsseoSpeed TM	3.5, 4.0, 5.0	3.5/4.0, 4.5/5.0
FRIADENT XiVE	3.4, 3.8, 4.5	3.4, 3.8, 4.5
NobelActive®	3.5, 4.3, 5.0	NP, RP
NobelReplace Conical	3.5, 4.3, 5.0	NP, RP
Nobel Replace Trilobe	3.5, 4.3, 5.0	NP, RP, WP
Brånemark	3.5, 3.75/4.0, 5.0	NP, RP, WP
Straumann® Bone Level	3.3, 4.1, 4.8	NC, RC
Straumann® Tissue Level	3.3, 4.1, 4.8	RN, WN
Tapered Screw-Vent®	3.7, 4.1, 4.7, 6.0	3.5, 4.5, 5.7

Reference Device

DESS Dental Smart Solutions abutments are intended to be used in conjunction with endosseous dental implants in the maxillary or mandibular arch to provide support for prosthetic restorations. All digitally designed custom abutments for use with AurumTM Abutment or Pre-milled Blank are to be sent to a Terrats Medical validated milling center for manufacture.

K173908 DESS Dental Smart Solutions Terrats Medical SL Compatible Implant Systems

Companior implant systems					
Implant System Compatibility	Implant Body	Implant Platform			
3i Certain®	3.25, 4.0, 5.0	3.4, 4.1, 5.0			
3i OSSEOTITE®	3.25, 3.75, 4.0, 5.0	3.4, 4.1, 5.0			
OsseoSpeed TM	3.5, 4.0, 5.0	3.5/4.0, 4.5/5.0			
FRIADENT XiVE	3.4, 3.8, 4.5	3.4, 3.8, 4.5			
NobelActive [®]	3.5, 4.3, 5.0	NP, RP			
NobelReplace® Conical	3.5, 4.3, 5.0	NP, RP			
NobelReplace® Trilobe	3.5, 4.3, 5.0	NP, RP, WP			
Brånemark	3.5, 3.75/4.0, 5.0	NP, RP, WP			
Straumann® Bone Level	3.3, 4.1, 4.8	NC, RC			
Straumann® Tissue Level	3.3, 4.1, 4.8	RP, WP			
Tapered Screw-Vent®	3.7, 4.1, 4.7, 6.0	3.5, 4.5, 5.7			

Reference Device

K191986 DESS Dental Smart Solutions Terrats Medical SL DESS Dental Smart Solutions abutments are intended to be used in conjunction with endosseous dental implants in the maxillary or mandibular arch to provide support for prosthetic restorations. All digitally designed custom abutments for use with Ti Base abutments or Pre-milled (Blank) abutments are to be sent to a Terrats Medical validated milling center for manufacture.

Compatible Implant Systems

Compatible Implant System	Implant Body Diameter,	Implant Platform
Ankylos C/X	3.5, 4.5, 5.5	2.52 mm
	3.6	2.9 mm
Astra Tech EV	4.2	3.5 mm
	4.8	4.1 mm
	3.0	3.0 mm
Astra Tech OsseoSpeed TM	3.5/4.0	3.5/4.0 mm
_	4.5/5.0	4.5/5.0 mm
	3.25	3.45 mm
Biomet 3i Certain®	4.0	4.1 mm
Biomet 31 Cerum	5.0	5.0 mm
	3.25	3.4 mm
Biomet 3i OSSEOTITE®	3.75, 4.0	4.1 mm
Biomet 31 ObsEO 111E	5.0	5.0 mm
	3.3	3.3 mm
Comles	3.8	3.8 mm
Camlog	4.3	4.3 mm
	5.0	5.0 mm
	3.4	3.4 mm
	3.8	3.8 mm
FRIADENT XiVE®	4.5	4.5 mm
	5.5	5.5 mm
MegaGen AnyRidge	3.5, 4.0, 4.5, 5.0, 5.5	3.5 mm
NobelActive [®] ,	3.0	3.0 (3.0 mm)
NobelActive [®] , NobelParallel	3.5	NP (3.5 mm)
Conical	4.3, 5.0	RP (3.9 mm)
Conicai	5.5	WP (5.1 mm)
	3.5	NP (3.5 mm)
	4.3	RP (4.3 mm)
NobelReplace [®] Trilobe	5.0	WP (5.0 mm)
	6.0	6.0 (6.0 mm)
	3.3	NP (3.5 mm)
Nobel Brånemark System [®]	3.75, 4.0	RP (4.1 mm)
Trees Branchian System	5.0	WP (5.1 mm)
Osstem TS	3.5	Mini (2.8 mm)
Ossielli 15	4.0, 4.5, 5.0, 6.0, 7.0	Regular (3.35 mm)
R D	3.3	NC (3.3 mm)
Straumann [®] Bone Level	4.1/4.8	RC (4.1/4.8 mm)
	3.3	NNC (3.5 mm)
Straumann [®] Tissue Level	3.3, 4.1, 4.8	RN (4.8 mm)
	4.8	WN (6.5 mm)
7immer Screw Vent®	3.3, 3.7, 4.1	3.5 mm
Zimmer Screw Vent [®] / Tapered Screw-Vent [®]	4.7	4.5 mm
Tapered Botew-Vent	6.0	5.7 mm

Table of Substantial Equivalence – Technological Characteristics

Comparison	Subject Device	Primary Predicate Device	Reference Devices	
	DESS Dental Smart Solutions	K170588 DESS Dental Smart Solutions	K173908 DESS Dental Smart Solutions	K191986 DESS Dental Smart Solutions
	Terrats Medical SL	Terrats Medical SL	Terrats Medical SL	Terrats Medical SL
Design				
Designs	Healing, Ti Base Interface, DESS Aurum Base, ELLIPTIBase, Pre- milled Blank, Multi Unit, DESSLoc	Healing, Temporary, Straight, Multi- unit, Locator-type, CAD/CAM Bases, CAD/CAM Blanks,	CAD/CAM Bases, CAD/CAM Blanks,	Healing, Temporary, Straight, Uniabutment, Multi-unit, DESSLoc, Ti Base (Interface), Ti Base (DESS Aurum), CrCo Base, Pre-milled (Blank)
Prosthesis Attachment	Cement-retained Screw-retained	Cement-retained Screw-retained	Cement-retained Screw-retained	Cement-retained Screw-retained
Restoration	Single-unit, Multi-unit	Single-unit, Multi-unit	Single-unit, Multi-unit	Single-unit, Multi-unit
Abutment/Implant Platform Diameter, mm	2.3 – 6.0	3.0 – 6.0	3.6 - 5.0	2.3 – 6.0
Prosthetic Platform Diameter, mm	4.5-6.5	4.5	4.0 - 6.5	4.5-6.5
Abutment Angle	Straight (0°)	Straight (0°)	Straight (0°)	0°, 17°, 30°
Abutment/ Implant Interface	Internal, External	Internal, External	Internal, External	Internal, External
Material				
Abutments	Ti-6Al-4V ELI Co-Cr-Mo Alloy	Ti-6Al-4V ELI	Ti-6Al-4V ELI Co-Cr-Mo Alloy	Ti-6Al-4V ELI Co-Cr-Mo Alloy
Screws	Ti-6Al-4V ELI DLC coating	Ti-6Al-4V ELI DLC coating	Ti-6Al-4V ELI DLC coating	Ti-6Al-4V ELI DLC coating