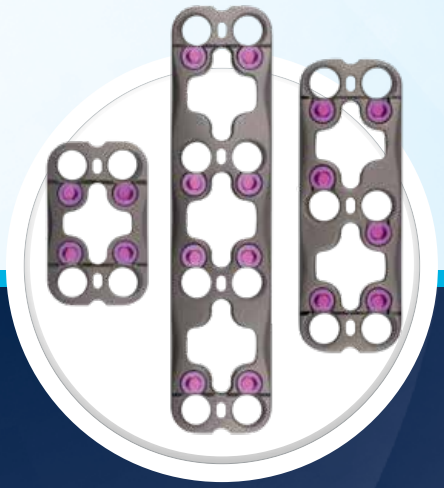


GLOBUS MEDICAL



PROVIDENCE™

Anterior Cervical Plate System

Outside the US Only

SURGICAL TECHNIQUE GUIDE

GLOBUSMEDICAL.COM | *Life moves us*

GLOBUS MEDICAL

Our mission is to deliver cutting-edge technology, research, and innovative solutions to promote healing in patients with musculoskeletal disorders.

Life moves us

The Surgical Technique shown is for illustrative purposes only. The technique(s) actually employed in each case always depends on the medical judgment of the surgeon exercised before and during surgery as to the best mode of treatment for each patient. Additionally, as instruments may occasionally be updated, the instruments depicted in this Surgical Technique may not be exactly the same as the instruments currently available. Please consult with your sales representative or contact Globus directly for more information.

SURGICAL TECHNIQUE GUIDE

PROVIDENCE™

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PROVIDENCE™

Anterior Cervical Plate System



PROVIDENCE™ is an anterior cervical plate with large windows which allow graft access and visualization.

The technologically advanced screw blocking mechanism provides audible, tactile and visual confirmation when the mechanism is engaged.

Advanced Blocking Mechanism

Provides audible, tactile, and visual confirmation that the screws are blocked in place

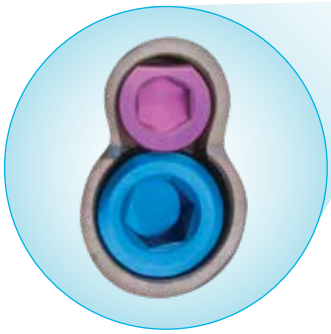
Large Graft Windows

Allows for visualization of graft placement intraoperatively and fusion status postoperatively

Streamlined Instrumentation

Facilitates and eases implant placement to help reduce surgery time





IMPLANT OVERVIEW

Blocking Set Screw

- Provides audible, tactile, and visual confirmation of blocking
- Preassembled into the plate
- Prevents screw backout

Plates

- 2.3mm low profile
- 16mm width
- Large graft visualization windows
- 1, 2, 3, 4 and 5-level plates
- Lengths from 10mm to 104mm



Variety of Screw Sizes

- 4.2mm or 4.6mm diameter
- Self-drilling or self-tapping
- Lengths from 10mm to 26mm
- Variable and Fixed Angle Screws



Variable Angle Screw

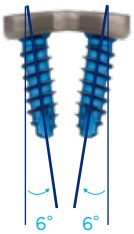


Fixed Angle Screw



Screw Angulation

- Variable angle screws provide ±20° angulation
- Pre-set angulation with drill guide
- 6° medial
- 10° cephalad/caudal respectively





**Additionally Available*

INSTRUMENT OVERVIEW

SCREW PREPARATION INSTRUMENTS



Cervical Awl, with Sleeve 650.100



Cervical Awl, for Drill Guide 650.102



Drill Bits

Drill Bit, 10mm 650.110	
Drill Bit, 12mm 650.112	
Drill Bit, 14mm 650.114	
Drill Bit, 16mm 650.116	
Drill Bit, 18mm 650.118	
Drill Bit, 20mm 650.120	

SCREW PREPARATION INSTRUMENTS (CONT'D)



Quick Connect Handle, Small, with Cap 650.105



Cervical Tap 650.160

PLATE INSERTION INSTRUMENTS



Temporary Fixation Pin 650.010



Temporary Screw 650.012



Fixation Pin Driver 650.020



Push Button Holder 650.200



Plate Bender 650.806

SCREW INSERTION INSTRUMENTS



Drill Bit, 2.4mm 650.150



Adjustable Depth Guide Drill Bit

Adjustable Depth Guide Drill Bit, 10mm 650.130	
Adjustable Depth Guide Drill Bit, 12mm 650.132	
Adjustable Depth Guide Drill Bit, 14mm 650.134	
Adjustable Depth Guide Drill Bit, 16mm 650.136	
Adjustable Depth Guide Drill Bit, 18mm 650.138	
Adjustable Depth Guide Drill Bit, 20mm 650.140	



DTS Guide, Pre-Set Angle Plate Holder 650.203



DTS Guide, Variable Angle 650.206

*Items in grey are additionally available

SCREW INSTRUMENTS (CONT'D)



Drill Guide, Variable Angle, Short Barrel 650.210

Drill Guide Variable Angulation,
Adjustable Depth 650.211



Screwdriver, 2.5mm Hex, Self-Retaining, with Cap 650.301

BLOCKING SET SCREW INSTRUMENTS



Set Screw Positioner, 2.0mm Hex, Torque Limiting 650.312



2.1mm Hex Screwdriver 650.313

SURGICAL TECHNIQUE

PROVIDENCE™

STEP 1 APPROACH AND PREPARATION

The patient is placed under anesthesia and positioned supine. The operative area is cleaned and an incision is made at the appropriate fusion level(s). PROVIDENCE™ Plate Fixation may be used in the cervical spine from C2 to C7. Please refer to the product insert for complete description, contraindications, indications, warnings and precautions.

Distraction may be accomplished using a standard distractor (see the COLONIAL® ACDF System) or other standard methods. Prepare the disc space and insert bone graft or an interbody fusion device. Refer to the COLONIAL® ACDF Surgical Technique Guide (GMTGD27) for recommended techniques. Remove anterior osteophytes to allow the plate to sit flush on the vertebral body.

STEP 2 PLATE PLACEMENT

Choose the appropriate plate size. Plate length is measured from the center of the cephalad hole to the center of the caudal hole. Laser marked lines on the plate assist in positioning.

Plate Bending and Placement

All plates are pre-contoured in the sagittal plane to provide lordosis, however additional contouring may be accomplished using the Plate Bender.

Option A: Removable Bottom Anvil

Too add lordosis, insert the plate into the prongs as shown at right. Ensure that the bottom anvil is loaded onto the bender so that the "+ LORDOSIS" laser mark aligns with the arrow as shown below. Rotate the top anvil down and compress the handles to achieve the desired curvature.

Note: Do not bend the plate at the bone screw hole and adjacent set screw interface. Repeated bending may weaken the plate.





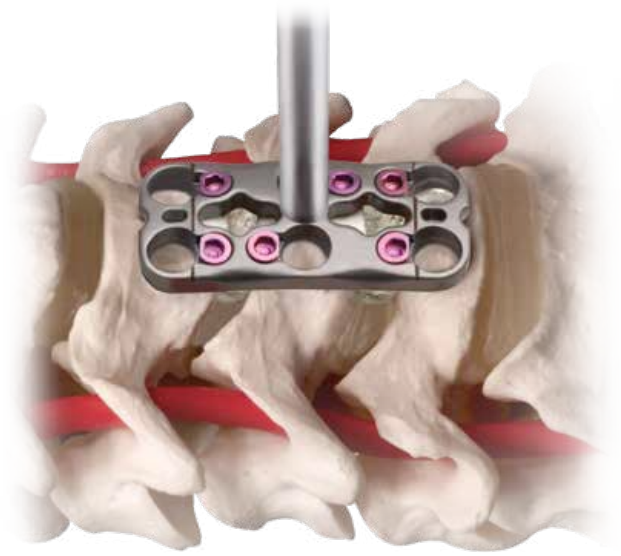
Plate properly inserted



Anvil rotated to final position

The Plate Bender may also be used to decrease lordosis. Insert the plate, top surface facing in, and load the bottom anvil so that the "- LORDOSIS" laser mark aligns with the arrow.

Use the **Push Button Holder** to place the plate. Press the holder tip into a midline pin hole at the appropriate angle, as described on page 12. To remove the holder, press the button at the top of the handle. Alternately, the **DTS Guide, Pre-Set Angle Plate Holder** may be used.



Using the Push Button Holder to place the plate

Option B: Plate Bender - New Design

To add lordosis, insert the plate with set screws facing the bottom anvil. In most situations, the top anvil should be rotated to the standard position (wider tip facing the plate), as shown. This will provide the most gradual bend over multiple levels.

Several plates do not have sufficient surface area to fit this side of the anvil without interfering with the set screws (see chart below). When using these plates, rotate the anvil to the narrow tip to bend the plate. These plates are as follows:

1 Level: 16-18mm (150.116-150.118)

2 Level: 32-36mm (150.232-150.236)

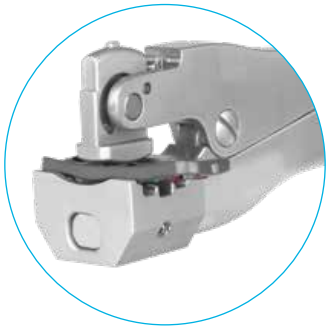
3 Level: 48-54mm (150.348-150.354)

4 Level: 63-72mm (150.463-150.472)

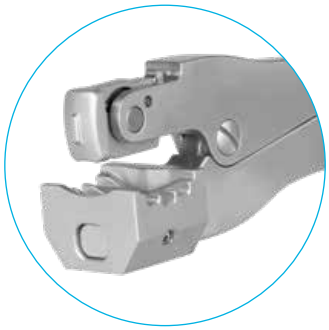
5 Level: 80-89mm (150.580-150.589)

Do not bend the plate at the bone screw hole and adjacent set screw interface. This is avoided by placing the plate on the bender in the correct position, as described above.

Plates may be bent to decrease lordosis. To decrease lordosis, insert the plate with set screws facing the upper anvil and rotate the anvil to the neutral position.



Standard



Neutral

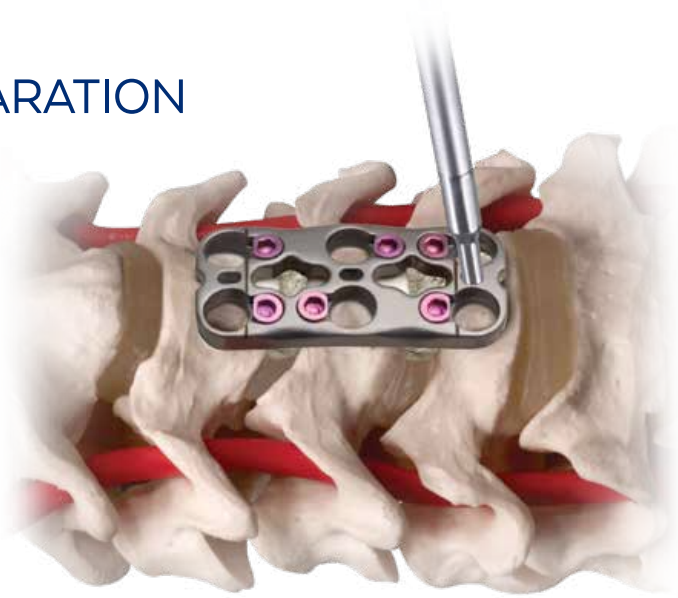


Narrow

STEP 3 SCREW HOLE PREPARATION

The plate may be temporarily secured by using Temporary Fixation Pins. Use the Fixation Pin Driver to insert the pin through the midline pin hole as shown below.

Note: When removing Temporary Fixation Pins, rock the driver in a cephalad/caudal motion while pulling upwards.



Inserting the Temporary Fixation Pin

Option A: Pre-Set Angulation

Using the DTS Guide, Pre-Set Angle Plate Holder

Ensure that the blue handle is rotated counterclockwise until the stop. Insert guide tip into the pin hole. Rotate the blue handle clockwise until a rigid connection is established.

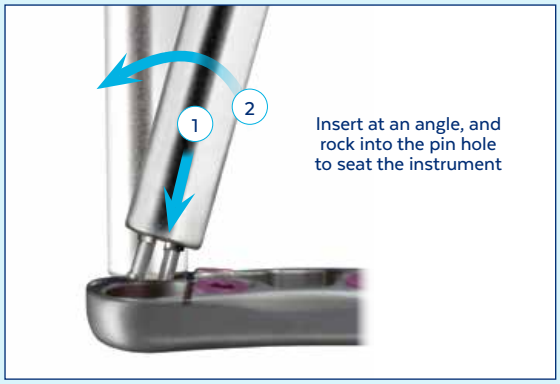
Start each pilot screw hole by inserting the **Cervical Awl, for Drill Guide** into the DTS guide.

Determine the desired drill depth and select the appropriate fixed length **Drill Bit**. The bits are color coded corresponding to the screw length. Assemble the bit to the **Quick Connect Handle, Small, with Cap** and insert into the drill guide. Drill to the stop.

INSERTING INSTRUMENTS INTO THE PIN HOLES

The pin holes on the cephalad and caudal ends of the plate are angled at 10° respectively. Insert the Push Button Holder and DTS guides at this angle.

The pin hole in the center of the plate is not angled and the Push Button Holder and DTS guides may be inserted perpendicular to the plate.



LOADING THE TEMPORARY FIXATION PIN

To load and unload the pin from the Fixation Pin Driver, pull back on the sleeve as shown below.

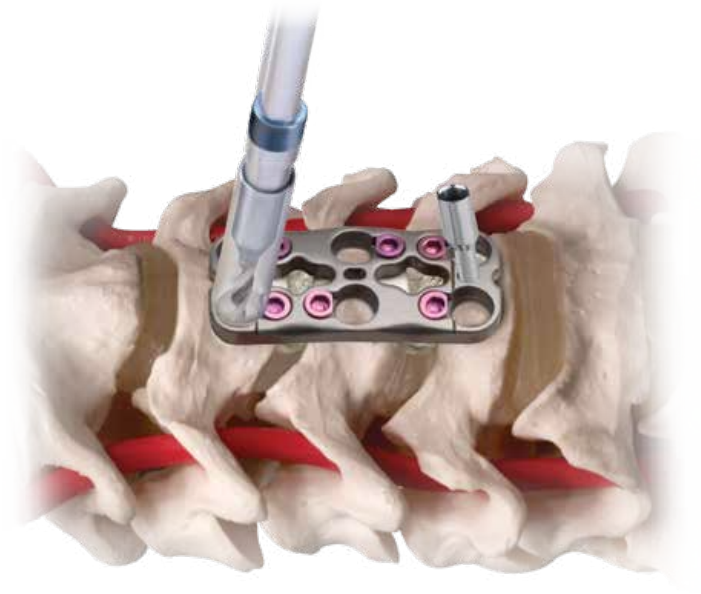


Screw holes may be tapped through the drill guide using the **Cervical Tap.**

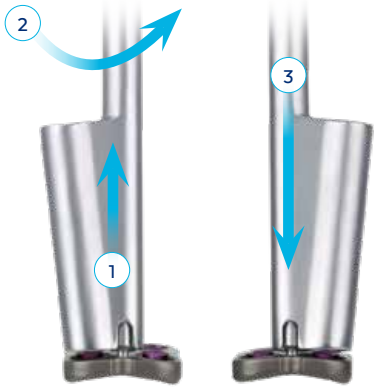
The barrel of the DTS guide rotates to conveniently switch to the contralateral side. Pull the sleeve up toward the handle, rotate, and release the sleeve to change barrel position.

Screws may also be inserted through the DTS guide. See Step 4, page 17 for screw insertion.

Note: Drill bits are not intended for connection to power drill sources.



Using DTS Guide, Pre-Set Angle Plate Holder to prepare screw pilot hole

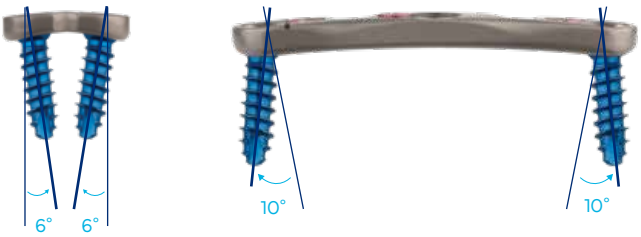


Lift and rotate sleeve to contralateral side

DTS GUIDE, PRE-SET ANGLE PLATE HOLDER

The DTS guide provides the pre-set screw angulation for awling, drilling, tapping and inserting screws.

Note: Care should be taken when using screws longer than 14mm, to prevent medial interference.



Axial Plane

Sagittal Plane

Option B: Variable Angulation

Using the DTS Guide, Variable Angle

The **DTS Guide, Variable Angle** may be used to insert the drill bit, tap and screws, while still maintaining a variable screw trajectory. The tip of the DTS guide sits within the pin hole and allows angulation in the cephalad/caudal direction.

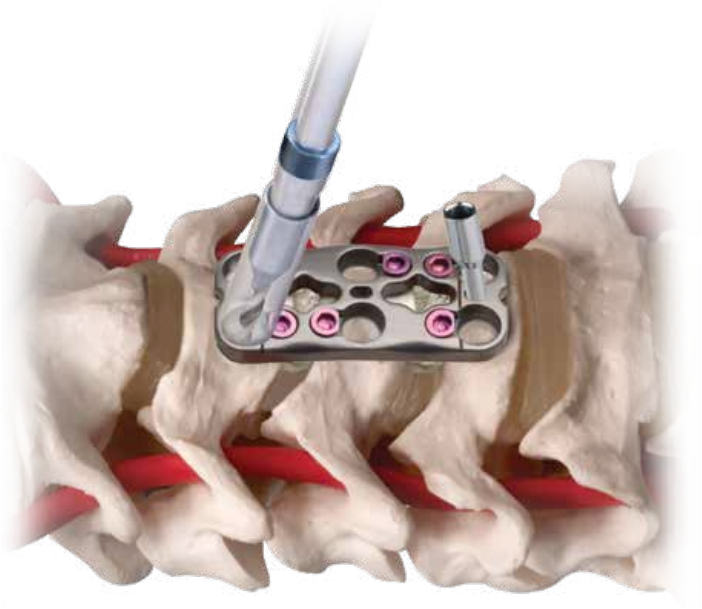
Start each pilot screw hole by inserting the Cervical Awl, for Drill Guide into the DTS guide.

Determine the desired drill depth and select the appropriate fixed length Drill Bit. The bits are color-coded corresponding to screw length. Assemble the bit to the Quick Connect Handle, Small, with Cap and insert into the DTS guide. Drill to the stop.

Screw holes may be tapped through the DTS guide using the Cervical Tap.

The barrel of the DTS guide rotates to conveniently switch to the contralateral side. Pull the sleeve toward the handle and rotate the barrel, as shown on page 13.

Note: Variable angle guides should not be used to prepare screw holes for Fixed Angle Screws.



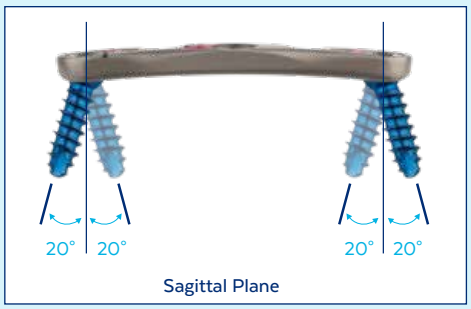
Using DTS Guide, Variable Angle to prepare screw pilot hole

Note: The DTS Guide, Variable Angle has a rotating handle. To change the angle, retract the tapered sleeve and rotate the handle about the axis of the shaft.

DTS GUIDE, VARIABLE ANGLE

The DTS guide allows screw angulation in the cephalad/caudal drections for awling, drilling, tapping and screw insertion.

Note: Care should be taken when using screws longer than 14mm, to prevent medial interference.



Using the Variable Angle Drill Guide

Start each pilot screw hole by inserting the **Cervical Awl, with Sleeve** into the screw hole within the plate. Alternately, the Cervical Awl, for Drill Guide may be inserted through the **Variable Angle Drill Guide**.

Place the drill guide into the desired plate hole. This guide permits full angulation of the drill bit through the plate.

Determine the desired drill depth and select the appropriate fixed length Drill Bit. The bits are color-coded corresponding to screw length. Assemble the bit to the Quick Connect Handle, Small and insert into the drill guide. Drill to the stop.

Screw holes may be tapped using the Cervical Tap.



Using Variable Angle Drill Guide to prepare screw pilot hole

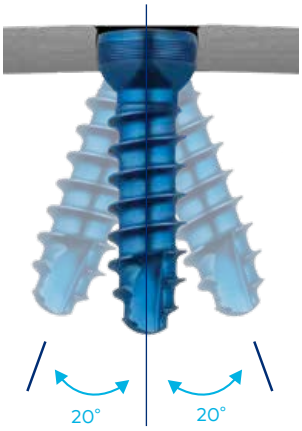
Using the Drill Guide Variable Angulation, Adjustable Depth

The **Drill Guide Variable Angulation, Adjustable Depth** allows drill depth from 10mm to 20mm, in 2mm increments. Adjust the drill guide depth as described at right.

Note: Variable angle guides should not be used to prepare screw holes for Fixed Angle Screws.

VARIABLE ANGLE DRILL GUIDES

Allow screw angulation of 20° in any direction for drilling screw pilot holes.

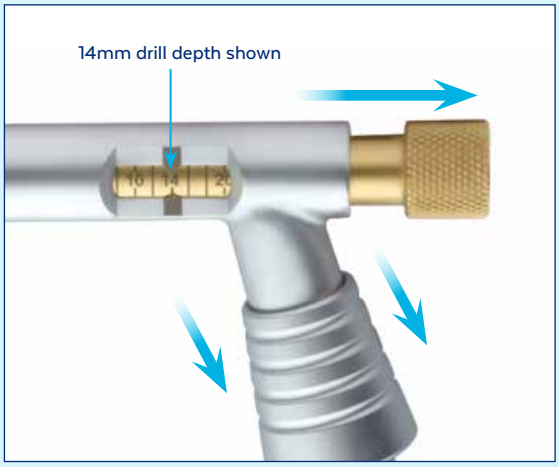


Note: Care should be taken to prevent medial interference.

ADJUSTING DRILL GUIDE DEPTH

Pull down the tapered sleeve to release the ratchet. Adjust the drill stop until the appropriate depth is indicated.

Release the sleeve to lock the drill guide at the appropriate depth. Ensure that the ratchet is fully engaged by pressing on the drill stop.



Option B. Variable Angulation (cont'd)

Drill Guide Variable Angulation, Adjustable Depth, Cont'd

Attach the **Drill Bit, 2.4mm** to the Quick Connect Handle, Small, with Cap and insert the bit through the drill guide. Drill to the stop. The Drill Bit 2.4mm has a gold tip, indicating that it is to be used with the Drill Guide Variable Angulation, Adjustable Depth (gold stop).



Drill Guide Variable Angulation, Adjustable Depth with Drill Bit, 2.4mm inserted

Alternately, the Drill Guide Variable Angulation, Adjustable Depth may be used with fixed depth bits. Pull back the tapered sleeve to disengage the ratchet. The drill stop can be removed from the drill guide and the **Adjustable Depth Guide Drill Bit** of the appropriate length inserted.



Variable Angulation, Adjustable Depth Drill Guide with Adjustable Depth Guide Drill Bit, 14mm inserted

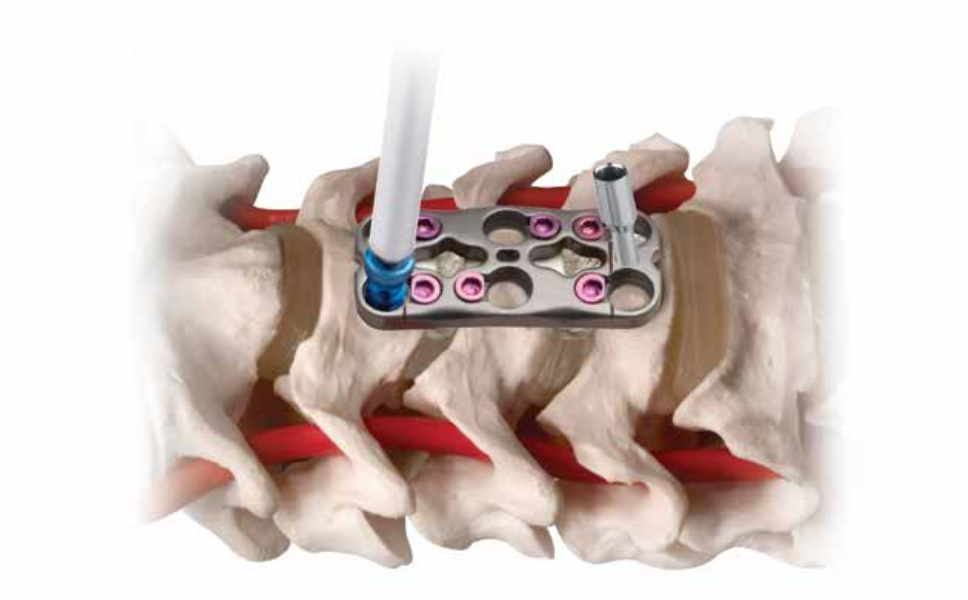
The fixed depth drill bits are additionally available and also have a gold tip to indicate that they are to be used with the Drill Guide Variable Angulation, Adjustable Depth.



STEP 4 SCREW INSERTION

Load the desired screw from the module using the Screwdriver, 2.5mm Hex, Self-Retaining. Verify screw length and diameter using the gauges within the screw module. Insert the screw through screw hole. As the screw is inserted, the plate will lag to the bone.

Note: All screw lengths are measured by bone engagement.



Screw insertion

STEP 5 SCREW BLOCKING

Once the screws are fully seated within the plate, insert the **Set Screw Positioner, 2.0mm Hex, Torque Limiting** into the blocking set screw and rotate clockwise approximately 180°. The set screw positioner, will provide audible and tactile confirmation that the screw is blocked from backing out. As a final confirmation, visually confirm that the blocking set screw is correctly rotated approximately 180°, as shown below.

Initial Position



Blocking set screw

Final Postiion



Flat facing away from screw

FINAL CONSTRUCT



Lateral View



AP View

OPTIONAL: SCREW REMOVAL

For screw removal, simply reverse the steps for insertion. Use the Set Screw Positioner, 2.0mm Hex, Torque Limiting to rotate the blocking set screws counterclockwise 180°. Remove the screws from the plate using the 2.5mm Hex Screwdriver.

In the event the blocking set screw hex becomes stripped, use the 2.1mm Hex Screwdriver. A **Screw Extractor for 2.5mm Hex** is additionally available and may be used if a screw hex becomes stripped.

PROVIDENCE™
CERVICAL PLATE SET 950.902

1-Level (QTY 1 Each)

Part No.	Length
150.110	10mm
150.112	12mm
150.114	14mm
150.116	16mm
150.118	18mm
150.120	20mm
150.122	22mm
150.124	24mm
150.126	26mm

2-Level (QTY 1 Each)

Part No.	Length
150.224	24mm
150.226	26mm
150.228	28mm
150.230	30mm
150.232	32mm
150.234	34mm
150.236	36mm
150.238	38mm
150.240	40mm
150.242	42mm
150.244	44mm
150.246	46mm

3-Level (QTY 1 Each)

Part No.	Length
150.339	39mm
150.342	42mm
150.345	45mm
150.348	48mm
150.351	51mm
150.354	54mm
150.357	57mm
150.360	60mm
150.363	63mm
150.366	66mm
150.369	69mm

Part No.	Description
950.002	PROVIDENCE™ Plate Module

PROVIDENCE™ Cervical Plates Extra Lordotic

1-Level

Part No.	Length
150.130	10mm
150.132	12mm
150.134	14mm

2-Level

Part No.	Length
150.254	24mm
150.256	26mm

3-Level

Part No.	Length
150.379	39mm

4-Level

Part No.	Length
150.460	60mm
150.463	63mm
150.466	66mm
150.469	69mm
150.472	72mm
150.475	75mm
150.478	78mm
150.481	81mm
150.484	84mm
150.487	87mm
150.490	90mm
150.493	93mm

5-Level

Part No.	Length
150.580	80mm
150.583	83mm
150.586	86mm
150.589	89mm
150.592	92mm
150.595	95mm
150.598	98mm
150.601	101mm
150.604	104mm

NOTE: Set configuration may vary depending on location. Please consult your Globus Medical Sales Representative.

**Items in gray are additionally available*


150.246
150.244
150.242
150.240
150.238
150.236
150.234
150.232
150.230
150.228
150.226
150.224
AUX
2 LEVEL
1 LEVEL
150.110
150.112
150.114
150.116
150.118
150.120
150.122
150.124
150.126
AUXILIARY
3 LEVEL
150.339
150.342
150.345
150.348
150.351
150.354

PROVIDENCE™
SCREW SET 950.906

Fixed Angle Screws

Self-drilling	10mm	QTY	12mm	QTY	14mm	QTY	16mm	QTY	18mm	QTY	20mm	QTY
Ø4.2mm	150.010	4	150.012	10	150.014	10	150.016	10	-		-	
Ø4.6mm	150.510		150.512	10	150.514	10	150.516	10	-		-	
Self-tapping												
Ø4.2mm	150.030	4	150.032	10	150.034	10	150.036	10	150.038	4	150.040	4
Ø4.6mm	150.530		150.532	10	150.534	10	150.536	10	150.538	4	150.540	4

Variable Angle Screws

Self-drilling	10mm	QTY	12mm	QTY	14mm	QTY	16mm	QTY	18mm	QTY	20mm	QTY
Ø4.2mm	150.610	4	150.612	10	150.614	10	150.616	10	-		-	
Ø4.6mm	150.710		150.712	10	150.714	10	150.716	10	-		-	
Self-tapping												
Ø4.2mm	150.810	4	150.812	10	150.814	10	150.816	10	150.818	4	150.820	4
Ø4.6mm	150.910		150.912	10	150.914	10	150.916	10	150.918	4	150.712	4

Part No.	Description
950.006	PROVIDENCE™ Implant Module for Screws

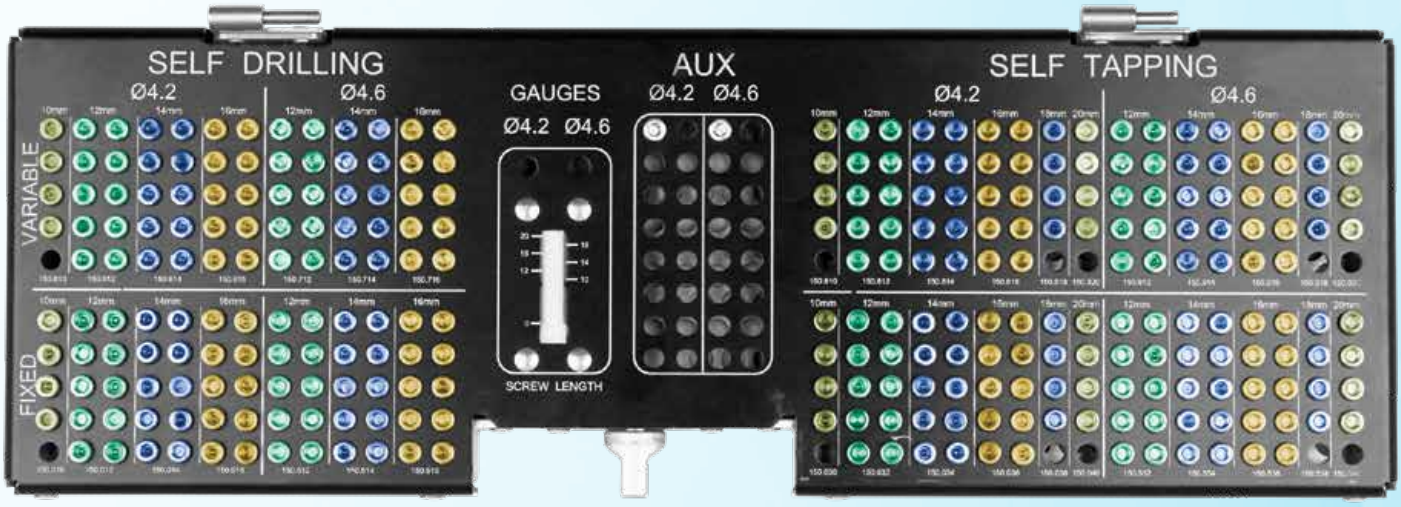
Additionally Available Fixed Angle Screws

Self-drilling	11mm	13mm	15mm	22mm	24mm	26mm
Ø4.2mm	150.011	150.013	150.015	-	-	-
Ø4.6mm	150.511	150.513	150.515	-	-	-
Self-tapping						
Ø4.2mm	150.031	150.033	150.035	150.042	150.044	150.046
Ø4.6mm	150.531	150.533	150.535	150.542	150.544	150.546

Additionally Available Variable Angle Screws

Self-drilling	11mm	13mm	15mm	22mm	24mm	26mm
Ø4.2mm	150.611	150.613	150.615	-	-	-
Ø4.6mm	150.711	150.713	150.715	-	-	-
Self-tapping						
Ø4.2mm	150.811	150.813	150.815	150.822	150.824	150.826
Ø4.6mm	150.911	150.913	150.915	150.922	150.924	150.726

*Items in gray are additionally available



NOTE: Set configuration may vary depending on location. Please consult your Globus Medical Sales Representative.

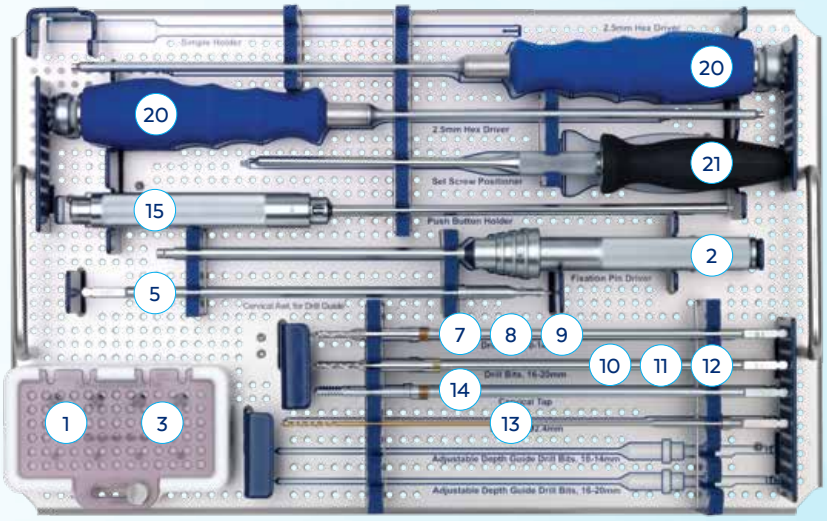
PROVIDENCE™
CERVICAL PLATE INSTRUMENT SET 950.900

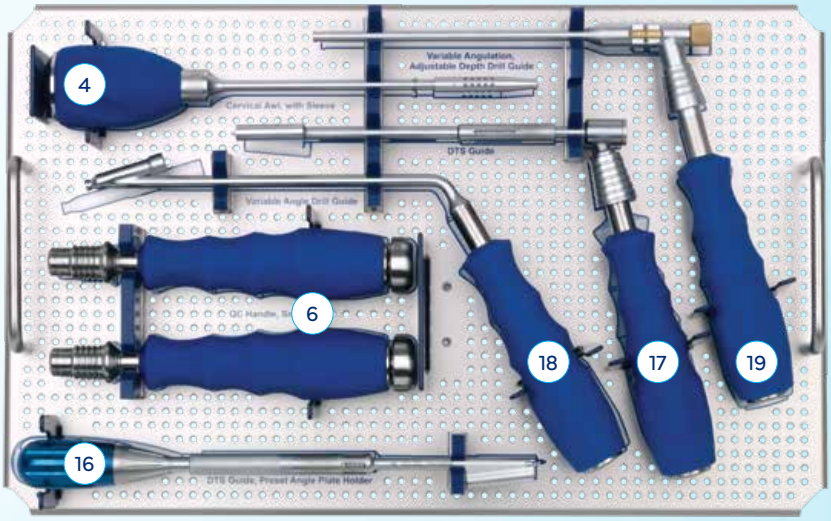
	Instrument		QTY
1	650.010	Temporary Fixation Pin	4
2	650.020	Fixation Pin Driver	1
3	650.012	Temporary Screw	4
4	650.100	Cervical Awl, with Sleeve	1
5	650.102	Cervical Awl, for Drill Guide	1
6	650.105	QC Handle, Small, with Cap	2
7	650.110	Drill Bit, 10mm	1
8	650.112	Drill Bit, 12mm	1
9	650.114	Drill Bit, 14mm	1
10	650.116	Drill Bit, 16mm	1
11	650.118	Drill Bit, 18mm	1
12	650.120	Drill Bit, 20mm	1
13	650.150	Drill Bit, 2.4mm	1
14	650.160	Cervical Tap	1
15	650.200	Push Button Holder	1
16	650.203	DTS Guide, Pre-Set Angle Plate Holder	1
17	650.206	DTS Guide, Variable Angle	1
18	650.210	Drill Guide, Variable Angle, Short Barrel	1
19	650.211	Drill Guide Variable Angulation, Adjustable Depth	1
20	650.301	Screwdriver, 2.5mm Hex, Self-Retaining, with Cap	1
21	650.312	Set Screw Positioner, 2.0mm Hex, Torque Limiting	1
22	650.313	2.1mm Hex Screwdriver	1
23	650.806	Plate Bender	1
	950.100	PROVIDENCE™ Graphic Case	

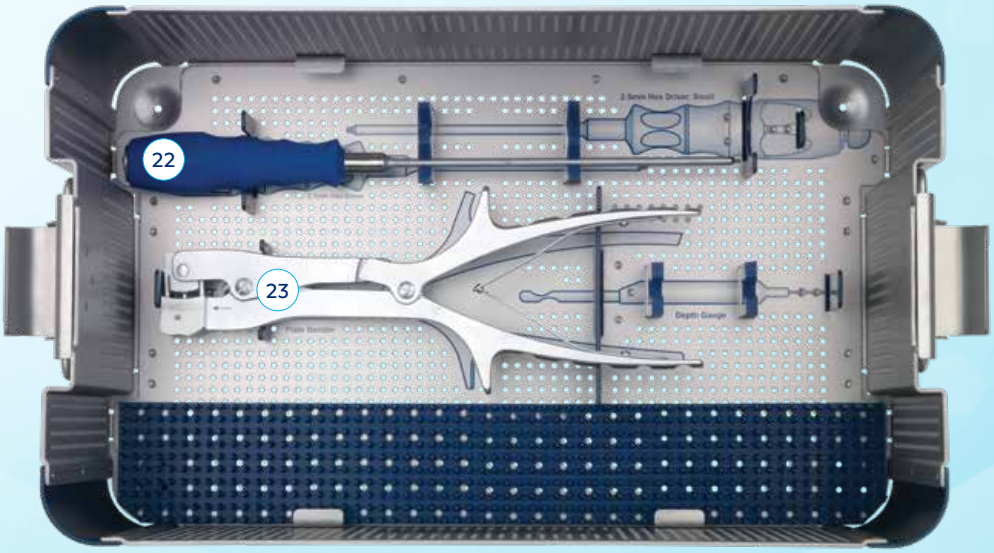
Additionally Available	
610.811	Cervical Depth Gauge
650.011	Temporary Fixation Pin, Smooth
650.013	Temporary Fixation Screw, Long
650.021	Slap Hammer
650.106	QC Handle, Small Ratcheting, with Cap
650.130	Adjustable Depth Guide Drill Bit, 10mm
650.132	Adjustable Depth Guide Drill Bit, 12mm
650.134	Adjustable Depth Guide Drill Bit, 14mm
650.136	Adjustable Depth Guide Drill Bit, 16mm
650.138	Adjustable Depth Guide Drill Bit, 18mm
650.140	Adjustable Depth Guide Drill Bit, 20mm
650.201	Simple Holder
650.208	DTS Guide, Pin Connection
650.212	Drill Guide, Variable Angle, Long Barrel
650.213	Drill Guide, Fixed Angle
650.223	Double Barrel DTS Guide, Preset Angle, Plate Holder
650.226	Double Barrle DTS Guide, Variable Angle
650.302	Screwdriver, 2.5mm Hex, Self-Retaining with Cap, Small
650.314	Screw Extractor, for 2.5mm Hex
650.510	Small Drill Bit, 10mm
650.512	Small Drill Bit, 12mm
650.514	Small Drill Bit, 14mm
650.516	Small Drill Bit, 16mm
650.518	Small Drill Bit, 18mm
650.520	Small Drill Bit, 20mm

NOTE: Set configuration may vary depending on location. Please consult your Globus Medical Sales Representative.

**Items in gray are additionally available*


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10.20 Rev A