



sara

Quad Lead
Pedicle Screw System

SARAPedicle Screw System



- Patented Quad Lead thread form extends average 18mm from the head of the screw and doubles the Number of contact points with the cortical wall of the Pedicle.
- Increases the resistances to axial pull out forces (Compared to Traditional thread Pedicle Screw)
- Constant dual lead thread promotes rapid screw placement.
- Self-tapping and self-centering screw tip allows for insertion with or without tapping.

Design Rationale

Progressive Changes

SARA Spine system is an enhanced Poly Axial Pedicle Screw System that provides the greatest holding power on the Poly Axial Screw housing and Set Screw, and allows stability of the Spinal fixation system in surgical management of the spine.

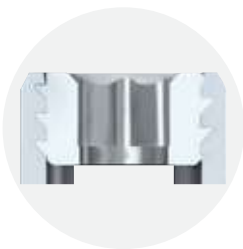
Enhanced Poly-Axial System

- Superior locking performance
- Conic taper housing increased stability
- Micro ridges on the Poly Axial Screw head and the washer allows maximum stability in SARA spine system.



SARA Pedicle Screw System

Poly-Axial Screw Head & Nut Thread



Design of thread in the nut makes it possible to achieve firm and stable fixation between the Screw and the Nut (significantly increasing the compression strength).

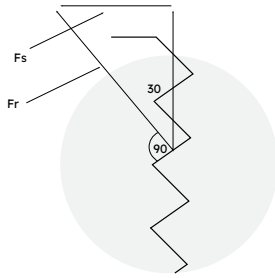
Poly-Axial Head Thread

Micro ridge machined in the poly-axial screw head combined with the washer incorporates a taper lock onto the Poly-Axial Screw head allowing maximum stability in SARA spine system.

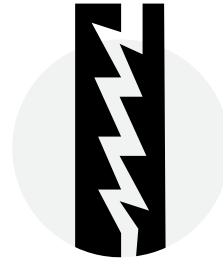


aBle Pedicle Screw System

General thread design



aBle thread design

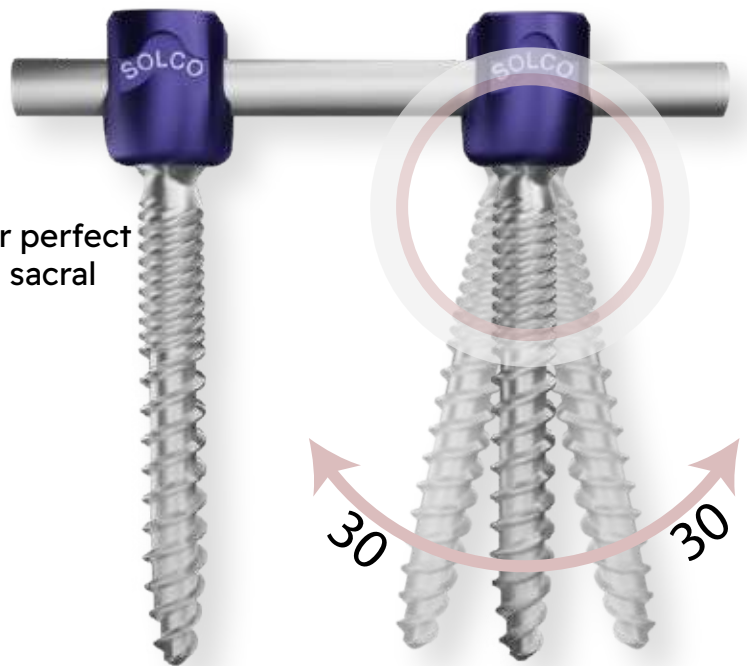


Thread design	Area	Fs
Standard	0.61mm ²	Fs=50% of Fr
aBle	0.66mm ²	Fs=16% of Fr

Poly-Axial ScrewThread

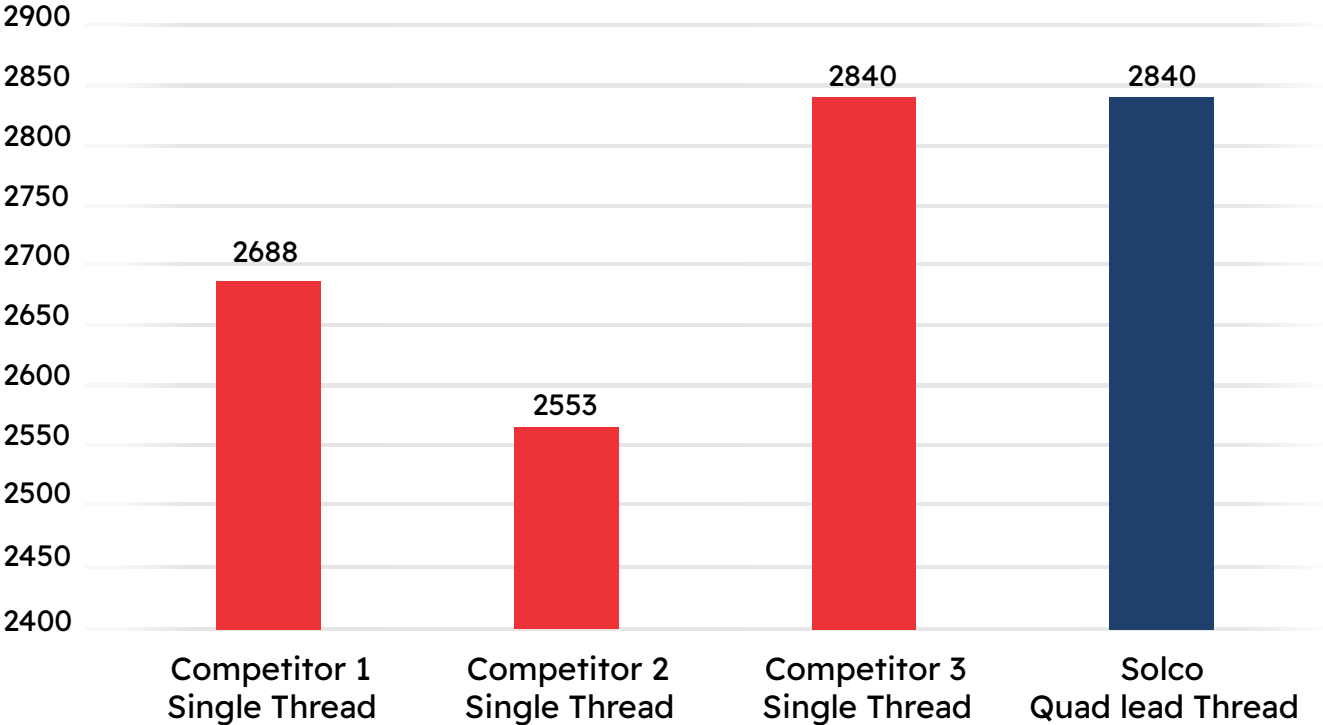
Various sizes of screws are available for perfect adaptation to the thoracic, lumbar and sacral pedicles.

- Optimal stress distribution
- Protection from screw pullout
- Easy insertion



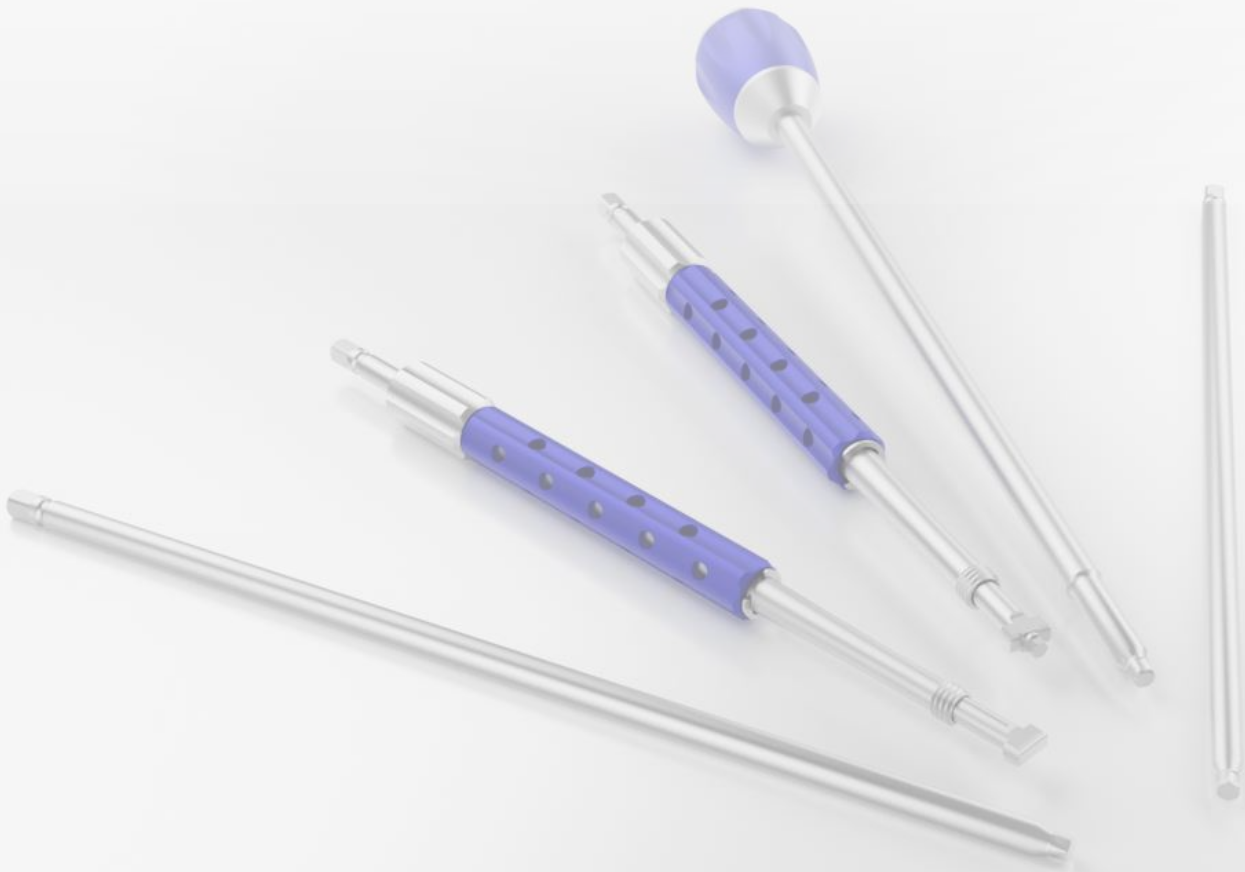
- Self-tapping and self-centering screw tip allows for insertion with or without tapping.

Bone Screw Pull-Out Test as per
ASTM-F543



Surgical Technique

- Pedicle Identification
- Pedicle Preparation
- Screw Insertion
- Rod Insertion
- Nut Application
- Compression/Distrraction
- Final Tightening
- Cross Link Technique



Surgical Technique

Steps

Pedicle Identification



Rod Insertion



Pedicle Preparation



Nut Application



Compression or Distraction



Surgical Technique

Step 1

Pedicle Identification

The pedicle entry point depends on the intersection techniques. It involves drawing a line from the lateral aspect of the facet joint, which intersects a line that bisects the transverse process at a spot overlying the pedicle. However, because of the high variability in pedicle dimensions on each level of vertebra, intra-operative radiograph is checked to determine the exact position of the entry in the anteroposterior and lateral projection after inserting guide pins.



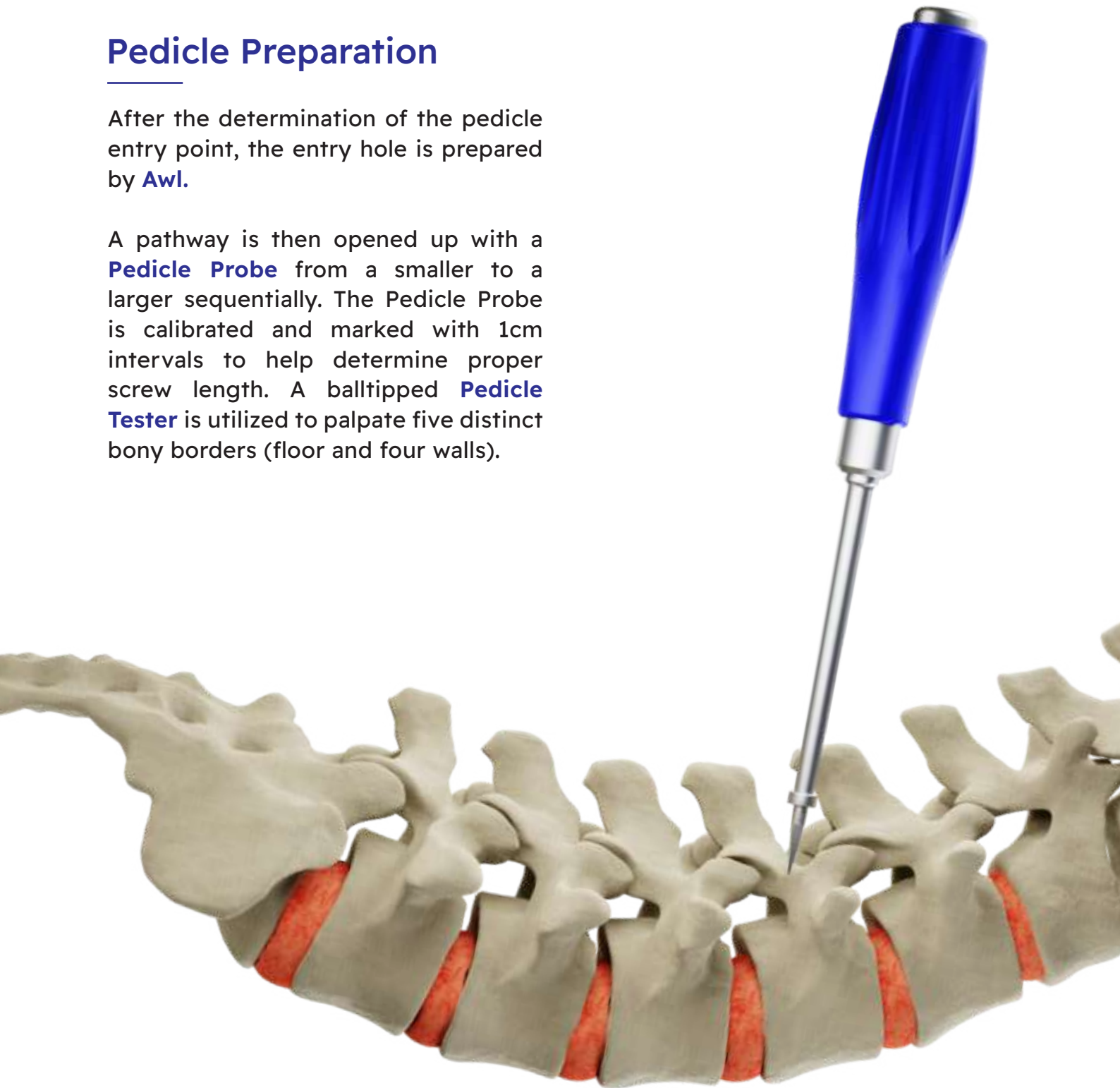
Surgical Technique

Step 2

Pedicle Preparation

After the determination of the pedicle entry point, the entry hole is prepared by **Awl**.

A pathway is then opened up with a **Pedicle Probe** from a smaller to a larger sequentially. The Pedicle Probe is calibrated and marked with 1cm intervals to help determine proper screw length. A balltipped **Pedicle Tester** is utilized to palpate five distinct bony borders (floor and four walls).





Surgical Technique

Step 3

Screw Insertion

With the pedicle pathway prepared and proper screw length and diameter determined, the screw is ready for insertion. Place the screw slowly while checking proper trajectory using fluoroscopic x-ray.



Surgical Technique

Step 4

Rod Insertion

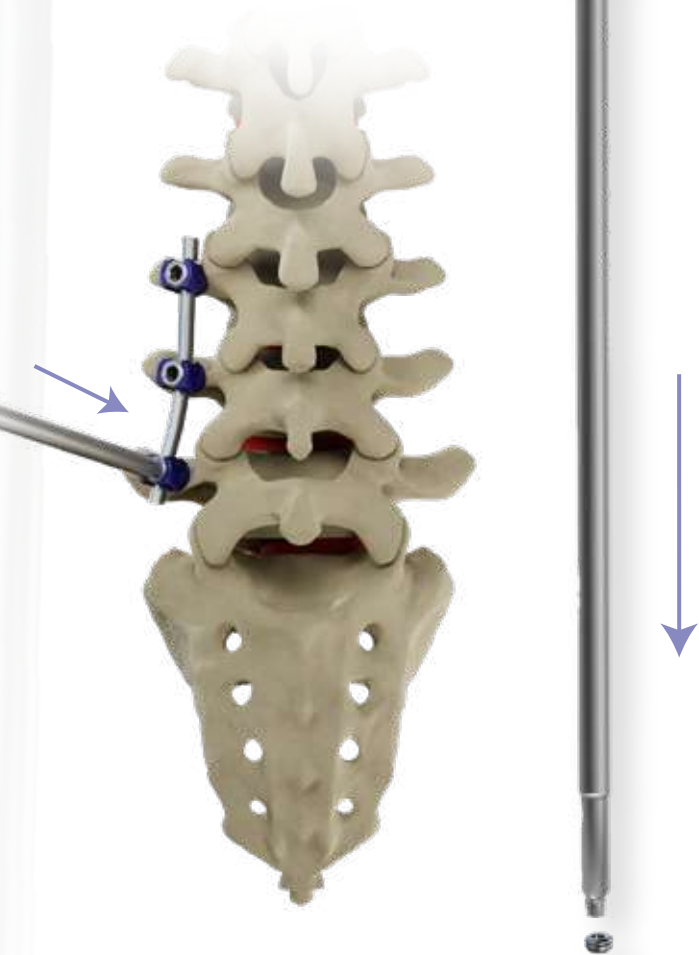
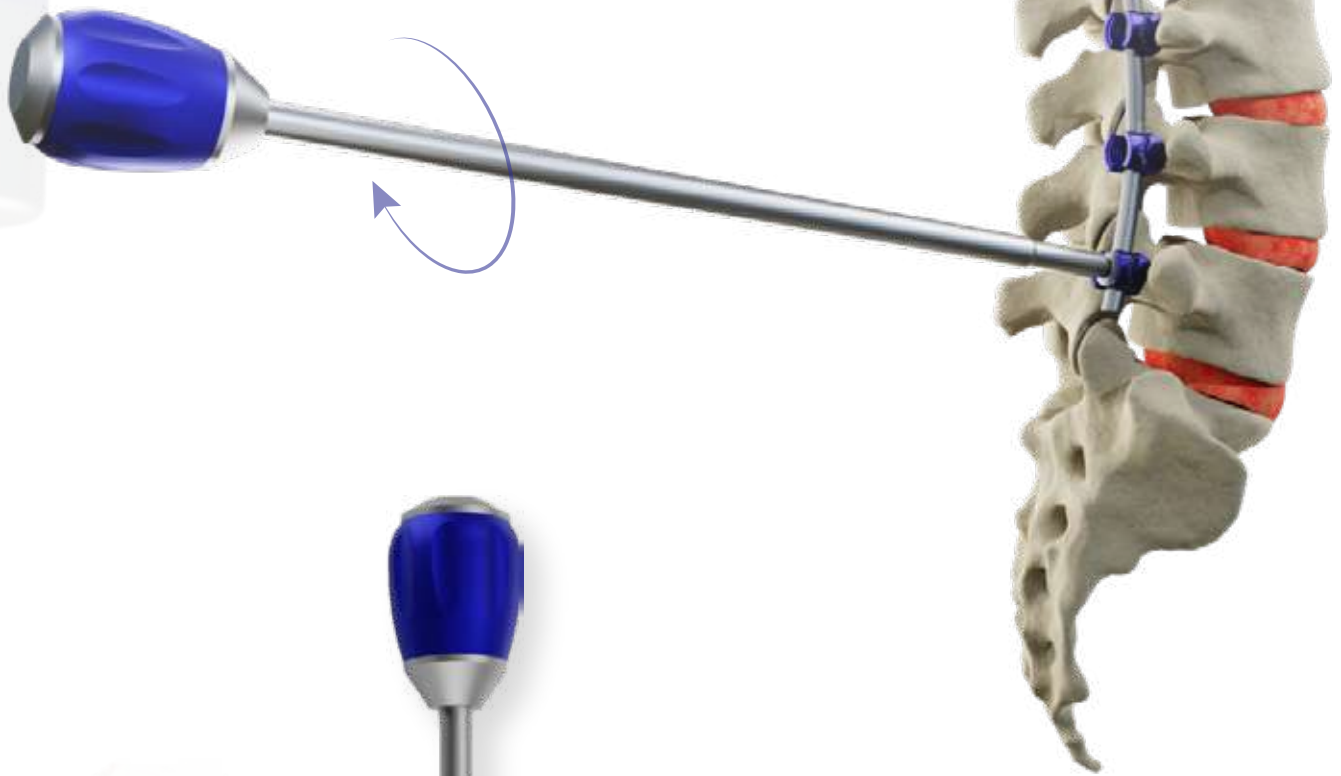
Cut the Rod to the appropriate length and bend the Rod with a **French Rod Bender** to fit the desired spinal contours.

A **Rod Holder** can be used for optimal Rod insertion.



Surgical Technique

Step 5



Nut Application

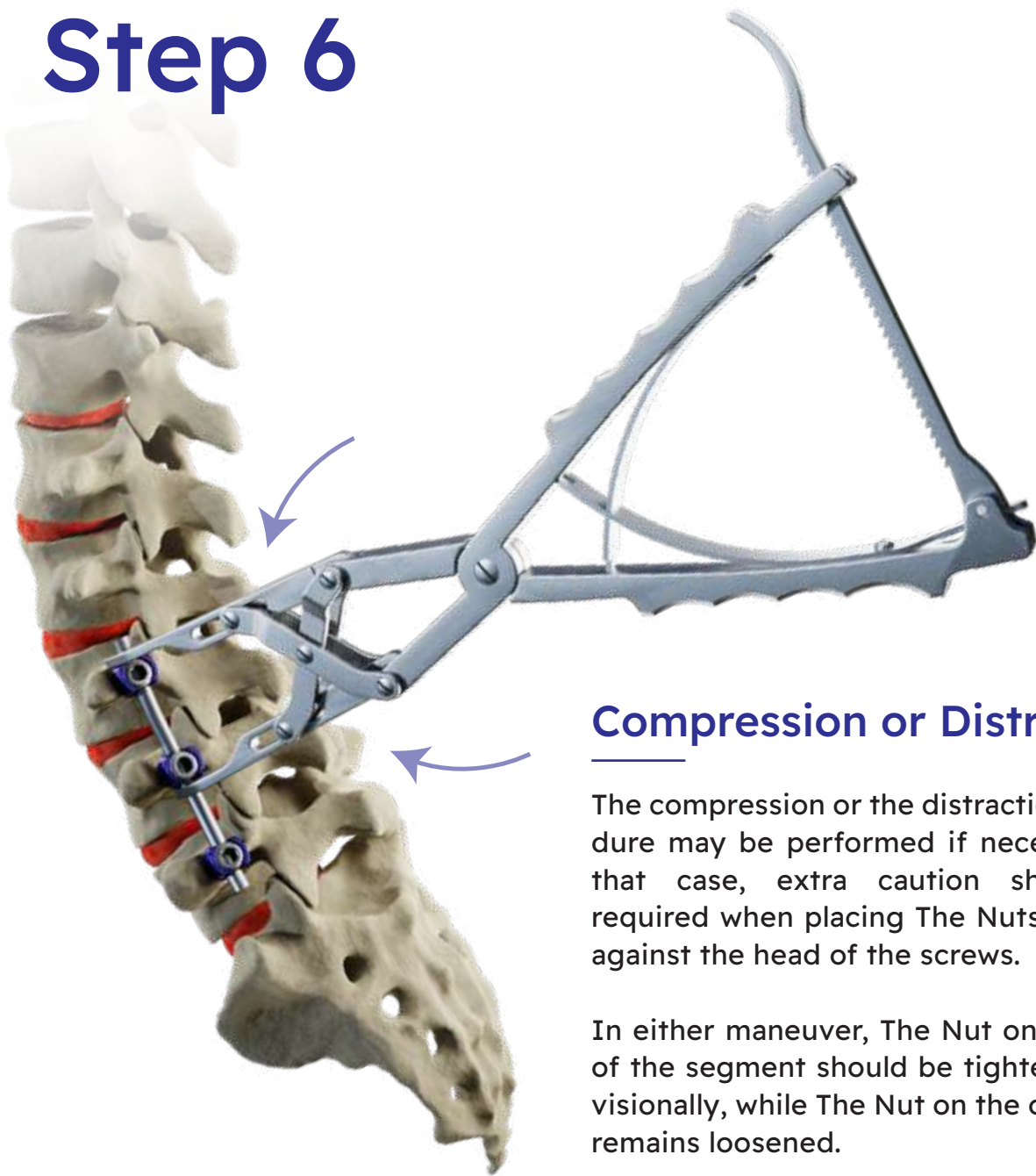
After the Rod is loaded into the bottom of the screw head, The Nut may be seated onto the top of the screw head using the **Nut Starter**.

When the rod is not fully seated into the head of the screw, the **Rod Introducer** is preferred for reduction. The Rod Introducer is then rotated clockwise levering the Rod inside of the screw head. The Nut Starter is then used to insert The Nut.

If necessary, the **Rod Pusher** or **Anti Torque Wrench** is used to hold the Rod inside of screw head.

Surgical Technique

Step 6



Compression or Distraction

The compression or the distraction procedure may be performed if necessary. In that case, extra caution should be required when placing The Nuts securely against the head of the screws.

In either maneuver, The Nut on one side of the segment should be tightened provisionally, while The Nut on the other side remains loosened.

The Compression or Distraction will occur against the provisionally tightened screws.



Surgical Technique

Step 6

Final Tightening

The final tightening is performed with the **Nut Final Driver** and the **Anti Torque Wrench**. The Anti Torque Wrench is placed to a screw and a Rod, while The Nut Final Driver is inserted through the cannulation of The Anti Torque Wrench.

If necessary, The Nut Final Driver may be used to remove a nut after final tightening. Once a Nut has been removed, it should be discarded and replaced with the new one.



Surgical Technique

Step 7

Cross Link Technique

After selection of cross link that corresponds in proper size for the distance between rods, The Cross link is applied to the rods and tightened with two tightening screws.

If the size of cross link doesn't fit exactly, **Compressor** or **Distractor** can be used accordingly to adjust the distance between rods before final fixation.



Implants

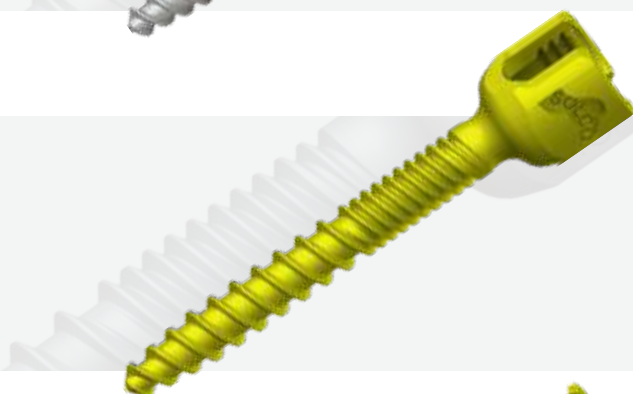
Poly-Axial Pedicle Screw



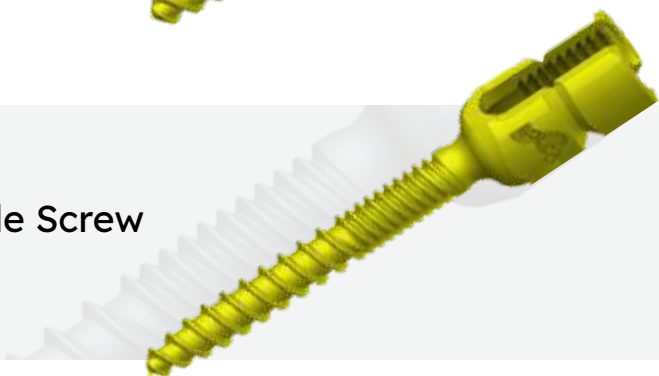
Poly-Axial Reduction Pedicle Screw



Mono-Axial Pedicle Screw



Mono-Axial Reduction Pedicle Screw



Nut



Rod



Cross-Link



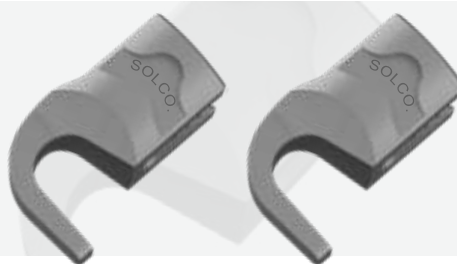
Lateral Connector



Domino Connector



Hook



Poly-Axial Pedicle Screw

Ø 4.0mm		Ø 4.5mm		Ø 5.0mm		Ø 5.5mm		Ø 6.0mm	
25mm	1012 - 4025	25mm	1012 - 4525	25mm	1012 - 5025	25mm	1012 - 5525	25mm	1012 - 6025
30mm	1012 - 4030	30mm	1012 - 4530	30mm	1012 - 5030	30mm	1012 - 5530	30mm	1012 - 6030
35mm	1012 - 4035	35mm	1012 - 4535	35mm	1012 - 5035	35mm	1012 - 5535	35mm	1012 - 6035
40mm	1012 - 4040	40mm	1012 - 4540	40mm	1012 - 5040	40mm	1012 - 5540	40mm	1012 - 6040
45mm	1012 - 4045	45mm	1012 - 4545	45mm	1012 - 5045	45mm	1012 - 5545	45mm	1012 - 6045
50mm	1012 - 4050	50mm	1012 - 4550	50mm	1012 - 5050	50mm	1012 - 5550	50mm	1012 - 6050
55mm	1012 - 4055	55mm	1012 - 4555	55mm	1012 - 5055	55mm	1012 - 5555	55mm	1012 - 6055
60mm	1012 - 4060	60mm	1012 - 4560	60mm	1012 - 5060	60mm	1012 - 5560	60mm	1012 - 6060
65mm	1012 - 4065	65mm	1012 - 4565	65mm	1012 - 5065	65mm	1012 - 5565	65mm	1012 - 6065
		70mm	1012 - 4570	70mm	1012 - 5070	70mm	1012 - 5570	70mm	1012 - 6070
				75mm	1012 - 5075	75mm	1012 - 5575	75mm	1012 - 6075

Ø 6.5mm		Ø 7.0mm		Ø 7.5mm	
25mm	1012 - 6525	25mm	1012 - 7025	25mm	1012 - 7525
30mm	1012 - 6530	30mm	1012 - 7030	30mm	1012 - 7530
35mm	1012 - 6535	35mm	1012 - 7035	35mm	1012 - 7535
40mm	1012 - 6540	40mm	1012 - 7040	40mm	1012 - 7540
45mm	1012 - 6545	45mm	1012 - 7045	45mm	1012 - 7545
50mm	1012 - 6550	50mm	1012 - 7050	50mm	1012 - 7550
55mm	1012 - 6555	55mm	1012 - 7055	55mm	1012 - 7555
60mm	1012 - 6560	60mm	1012 - 7060	60mm	1012 - 7560
65mm	1012 - 6565	65mm	1012 - 7065	65mm	1012 - 7565
70mm	1012 - 6570	70mm	1012 - 7070	70mm	1012 - 7570
75mm	1012 - 6575	75mm	1012 - 7075	75mm	1012 - 7575
80mm	1012 - 6580	80mm	1012 - 7080	80mm	1012 - 7580
85mm	1012 - 6585	85mm	1012 - 7085	85mm	1012 - 7585
90mm	1012 - 6590	90mm	1012 - 7090	90mm	1012 - 7590
95mm	1012 - 6595	95mm	1012 - 7095	95mm	1012 - 7595
100mm	1012 - 6510	100mm	1012 - 7010	100mm	1012 - 7510

Poly-Axial Reduction Pedicle Screw

Ø 4.0mm		Ø 4.5mm		Ø 5.0mm		Ø 5.5mm		Ø 6.0mm	
25mm	1016 - 4025	25mm	1016 - 4525	25mm	1016 - 5025	25mm	1016 - 5525	25mm	1016 - 6025
30mm	1016 - 4030	30mm	1016 - 4530	30mm	1016 - 5030	30mm	1016 - 5530	30mm	1016 - 6030
35mm	1016 - 4035	35mm	1016 - 4535	35mm	1016 - 5035	35mm	1016 - 5535	35mm	1016 - 6035
40mm	1016 - 4040	40mm	1016 - 4540	40mm	1016 - 5040	40mm	1016 - 5540	40mm	1016 - 6040
45mm	1016 - 4045	45mm	1016 - 4545	45mm	1016 - 5045	45mm	1016 - 5545	45mm	1016 - 6045
50mm	1016 - 4050	50mm	1016 - 4550	50mm	1016 - 5050	50mm	1016 - 5550	50mm	1016 - 6050
55mm	1016 - 4055	55mm	1016 - 4555	55mm	1016 - 5055	55mm	1016 - 5555	55mm	1016 - 6055
60mm	1016 - 4060	60mm	1016 - 4560	60mm	1016 - 5060	60mm	1016 - 5560	60mm	1016 - 6060
65mm	1016 - 4065	65mm	1016 - 4565	65mm	1016 - 5065	65mm	1016 - 5565	65mm	1016 - 6065
		70mm	1016 - 4570	70mm	1016 - 5070	70mm	1016 - 5570	70mm	1016 - 6070
				75mm	1016 - 5075	75mm	1016 - 5575	75mm	1016 - 6075

Ø 6.5mm

25mm	1016 - 6525
30mm	1016 - 6530
35mm	1016 - 6535
40mm	1016 - 6540
45mm	1016 - 6545
50mm	1016 - 6550
55mm	1016 - 6555
60mm	1016 - 6560
65mm	1016 - 6565
70mm	1016 - 6570
75mm	1016 - 6575
80mm	1016 - 6580
85mm	1016 - 6585
90mm	1016 - 6590
95mm	1016 - 6595
100mm	1016 - 6510

Ø 7.0mm

25mm	1016 - 7025
30mm	1016 - 7030
35mm	1016 - 7035
40mm	1016 - 7040
45mm	1016 - 7045
50mm	1016 - 7050
55mm	1016 - 7055
60mm	1016 - 7060
65mm	1016 - 7065
70mm	1016 - 7070
75mm	1016 - 7075
80mm	1016 - 7080
85mm	1016 - 7085
90mm	1016 - 7090
95mm	1016 - 7095
100mm	1016 - 7010

Ø 7.5mm

25mm	1016 - 7525
30mm	1016 - 7530
35mm	1016 - 7535
40mm	1016 - 7540
45mm	1016 - 7545
50mm	1016 - 7550
55mm	1016 - 7555
60mm	1016 - 7560
65mm	1016 - 7565
70mm	1016 - 7570
75mm	1016 - 7575
80mm	1016 - 7580
85mm	1016 - 7585
90mm	1016 - 7590
95mm	1016 - 7595
100mm	1016 - 7510

Mono-Axial Pedicle Screw

Ø 4.5mm

25mm	1019 - 4525
30mm	1019 - 4530
35mm	1019 - 4535
40mm	1019 - 4540
45mm	1019 - 4545
50mm	1019 - 4550
55mm	1019 - 4555
60mm	1019 - 4560
65mm	1019 - 4565

Ø 5.0mm

25mm	1019 - 5025
30mm	1019 - 5030
35mm	1019 - 5035
40mm	1019 - 5040
45mm	1019 - 5045
50mm	1019 - 5050
55mm	1019 - 5055
60mm	1019 - 5060
65mm	1019 - 5065

Ø 5.5mm

25mm	1019 - 5525
30mm	1019 - 5530
35mm	1019 - 5535
40mm	1019 - 5540
45mm	1019 - 5545
50mm	1019 - 5550
55mm	1019 - 5555
60mm	1019 - 5560
65mm	1019 - 5565

Ø 6.0mm

25mm	1019 - 6025
30mm	1019 - 6030
35mm	1019 - 6035
40mm	1019 - 6040
45mm	1019 - 6045
50mm	1019 - 6050
55mm	1019 - 6055
60mm	1019 - 6060
65mm	1019 - 6065

Ø 6.5mm

25mm	1019 - 6525
30mm	1019 - 6530
35mm	1019 - 6535
40mm	1019 - 6540
45mm	1019 - 6545
50mm	1019 - 6550
55mm	1019 - 6555
60mm	1019 - 6560
65mm	1019 - 6565

Ø 7.0mm

25mm	1019 - 7025
30mm	1019 - 7030
35mm	1019 - 7035
40mm	1019 - 7040
45mm	1019 - 7045
50mm	1019 - 7050
55mm	1019 - 7055
60mm	1019 - 7060
65mm	1019 - 7065

Ø 7.5mm

25mm	1019 - 7525
30mm	1019 - 7530
35mm	1019 - 7535
40mm	1019 - 7540
45mm	1019 - 7545
50mm	1019 - 7550
55mm	1019 - 7555
60mm	1019 - 7560
65mm	1019 - 7565

Mono-Axial Reduction Pedicle Screw

Ø 4.5mm

25mm	1020 - 4525
30mm	1020 - 4530
35mm	1020 - 4535
40mm	1020 - 4540
45mm	1020 - 4545
50mm	1020 - 4550
55mm	1020 - 4555
60mm	1020 - 4560
65mm	1020 - 4565

Ø 5.0mm

25mm	1020 - 5025
30mm	1020 - 5030
35mm	1020 - 5035
40mm	1020 - 5040
45mm	1020 - 5045
50mm	1020 - 5050
55mm	1020 - 5055
60mm	1020 - 5060
65mm	1020 - 5065

Ø 5.5mm

25mm	1020 - 5525
30mm	1020 - 5530
35mm	1020 - 5535
40mm	1020 - 5540
45mm	1020 - 5545
50mm	1020 - 5550
55mm	1020 - 5555
60mm	1020 - 5560
65mm	1020 - 5565

Ø 6.0mm

25mm	1020 - 6025
30mm	1020 - 6030
35mm	1020 - 6035
40mm	1020 - 6040
45mm	1020 - 6045
50mm	1020 - 6050
55mm	1020 - 6055
60mm	1020 - 6060
65mm	1020 - 6065

Ø 6.5mm

25mm	1020 - 6525
30mm	1020 - 6530
35mm	1020 - 6535
40mm	1020 - 6540
45mm	1020 - 6545
50mm	1020 - 6550
55mm	1020 - 6555
60mm	1020 - 6560
65mm	1020 - 6565

Ø 7.0mm

25mm	1020 - 7025
30mm	1020 - 7030
35mm	1020 - 7035
40mm	1020 - 7040
45mm	1020 - 7045
50mm	1020 - 7050
55mm	1020 - 7055
60mm	1020 - 7060
65mm	1020 - 7065

Ø 7.5mm

25mm	1020 - 7525
30mm	1020 - 7530
35mm	1020 - 7535
40mm	1020 - 7540
45mm	1020 - 7545
50mm	1020 - 7550
55mm	1020 - 7555
60mm	1020 - 7560
65mm	1020 - 7565

Lateral Connector

Ø 5.5 x 20mm	1801 - 0020
Ø 5.5 x 25mm	1801 - 0025
Ø 5.5 x 30mm	1801 - 0030
Ø 5.5 x 35mm	1801 - 0035
Ø 5.5 x 40mm	1801 - 0040
Ø 5.5 x 45mm	1801 - 0045
Ø 5.5 x 50mm	1801 - 0050
Ø 5.5 x 55mm	1801 - 0055
Ø 5.5 x 60mm	1801 - 0060
Ø 5.5 x 65mm	1801 - 0065
Ø 5.5 x 70mm	1801 - 0070
Ø 5.5 x 75mm	1801 - 0075
Ø 5.5 x 80mm	1801 - 0080

Cross-Link

30 - 34mm	1703 - 3034
34 - 42mm	1703 - 3442
38 - 46mm	1703 - 3846
40 - 53mm	1703 - 4053
50 - 70mm	1703 - 5070

Nut

1039-0001

Domino Connector

Single Extension Connector	1801 - 0002
Double Extension Connector	1801 - 0001

Hook

Laminar Process Hook	1902 - 5501
Pedicle Process Hook	1903 - 5501
Transverse Process Hook	1904 - 5501

Rod : 5.5mm

Straight Rod (Ti)		Straight Hex End (Ti) Optional		Pre-Bent (Ti) Optional		Straight (Co-Cr) Optional		Pre-Bent (Co-Cr) Optional	
40mm	1507 - 5504	40mm	1506 - 5504	40mm	1519 - 5504	40mm	1711 - 5504	40mm	1520 - 5504
50mm	1507 - 5505	50mm	1506 - 5505	50mm	1519 - 5505	50mm	1711 - 5505	50mm	1520 - 5505
60mm	1507 - 5506	60mm	1506 - 5506	60mm	1519 - 5506	60mm	1711 - 5506	60mm	1520 - 5506
70mm	1507 - 5507	70mm	1506 - 5507	70mm	1519 - 5507	70mm	1711 - 5507	70mm	1520 - 5507
80mm	1507 - 5508	80mm	1506 - 5508	80mm	1519 - 5508	80mm	1711 - 5508	80mm	1520 - 5508
90mm	1507 - 5509	90mm	1506 - 5509	90mm	1519 - 5509	90mm	1711 - 5509	90mm	1520 - 5509
100mm	1507 - 5510	100mm	1506 - 5510	100mm	1519 - 5510	100mm	1711 - 5510	100mm	1520 - 5510
110mm	1507 - 5511	110mm	1506 - 5511	110mm	1519 - 5511	110mm	1711 - 5511	110mm	1520 - 5511
120mm	1507 - 5512	120mm	1506 - 5512	120mm	1519 - 5512	120mm	1711 - 5512	120mm	1520 - 5512
130mm	1507 - 5513	130mm	1506 - 5513	130mm	1519 - 5513	130mm	1711 - 5513	130mm	1520 - 5513
140mm	1507 - 5514	140mm	1506 - 5514	140mm	1519 - 5514	140mm	1711 - 5514	140mm	1520 - 5514
150mm	1507 - 5515	150mm	1506 - 5515	150mm	1519 - 5515	150mm	1711 - 5515	150mm	1520 - 5515
160mm	1507 - 5516	160mm	1506 - 5516	160mm	1519 - 5516	160mm	1711 - 5516	160mm	1520 - 5516
170mm	1507 - 5517	170mm	1506 - 5517	170mm	1519 - 5517	170mm	1711 - 5517	170mm	1520 - 5517
180mm	1507 - 5518	180mm	1506 - 5518	180mm	1519 - 5518	180mm	1711 - 5518	180mm	1520 - 5518
190mm	1507 - 5519	190mm	1506 - 5519	190mm	1519 - 5519	190mm	1711 - 5519	190mm	1520 - 5519
200mm	1507 - 5520	200mm	1506 - 5520	200mm	1519 - 5520	200mm	1711 - 5520	200mm	1520 - 5520
210mm	1507 - 5521	210mm	1506 - 5521			210mm	1711 - 5521		
220mm	1507 - 5522	220mm	1506 - 5522			220mm	1711 - 5522		
230mm	1507 - 5523	230mm	1506 - 5523			230mm	1711 - 5523		
240mm	1507 - 5524	240mm	1506 - 5524			240mm	1711 - 5524		
250mm	1507 - 5525	250mm	1506 - 5525			250mm	1711 - 5525		
260mm	1507 - 5526	260mm	1506 - 5526			260mm	1711 - 5526		
270mm	1507 - 5527	270mm	1507 - 5527			270mm	1711 - 5527		
280mm	1507 - 5528	280mm	1507 - 5528			280mm	1711 - 5528		
290mm	1507 - 5529	290mm	1507 - 5529			290mm	1711 - 5529		
300mm	1507 - 5530	300mm	1506 - 5530			300mm	1711 - 5530		
350mm	1507 - 5535	350mm	1506 - 5535			350mm	1711 - 5535		
400mm	1507 - 5540	400mm	1506 - 5540			400mm	1711 - 5540		
450mm	1507 - 5545	450mm	1506 - 5545			450mm	1711 - 5545		
500mm	1507 - 5550	500mm	1506 - 5550			500mm	1711 - 5550		

- Ti (Ti6AL)

- Co-Cr (Cobalt-chrome)

Instruments

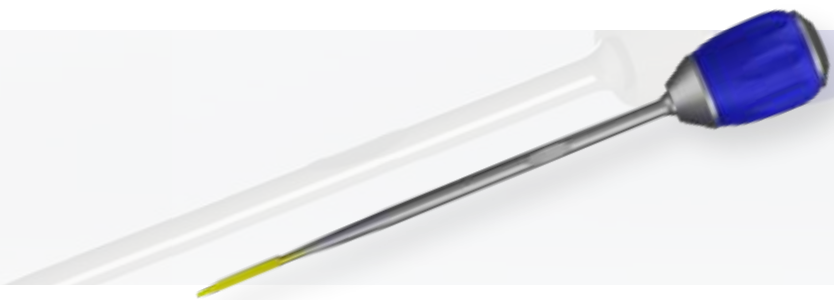
0105 - 0001

AWL



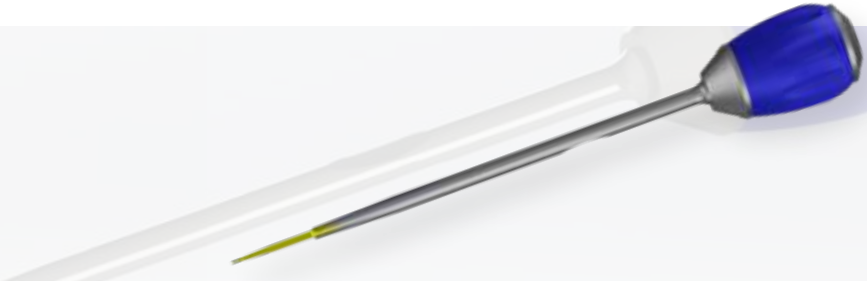
0105 - 0004

Probe, (L) Curved



0105 - 0003

Probe, (L) Straight



0105 - 0023

Pedicle Tester, Straight

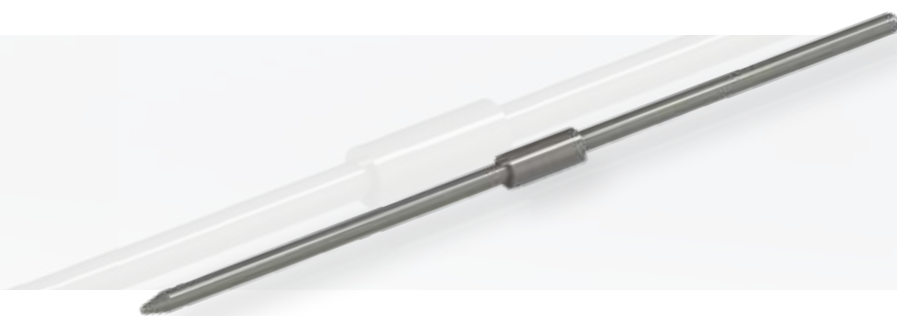


0105 - 0024

Pedicle Tester, Curved



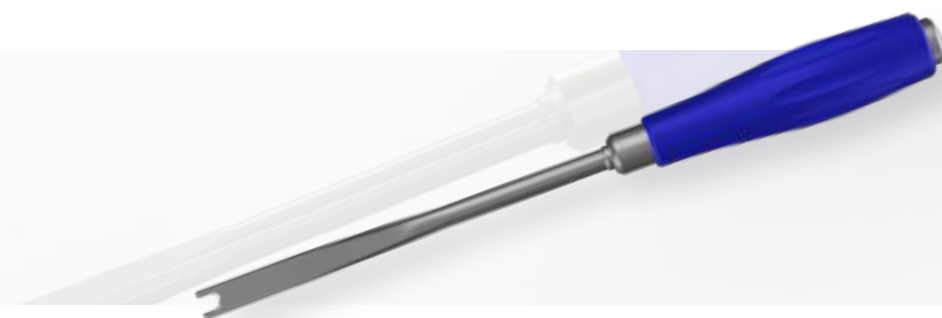
0105 - 0041
Guide Pin, Ellipse



0105 - 0040
Guide Pin, Straight



0105 - 0005
Rod Pusher



0105 - 0006
Rod Introducer

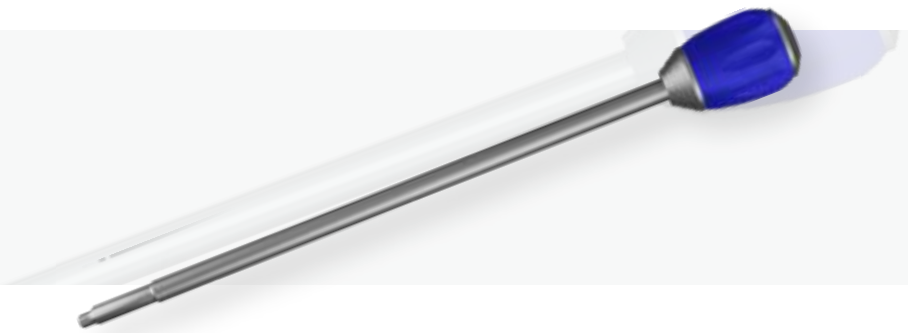


Tap :
4.3mm 0105 - 0016
5.3mm 0105 - 0017
6.3mm 0105 - 0018
7.3mm 0105 - 0019



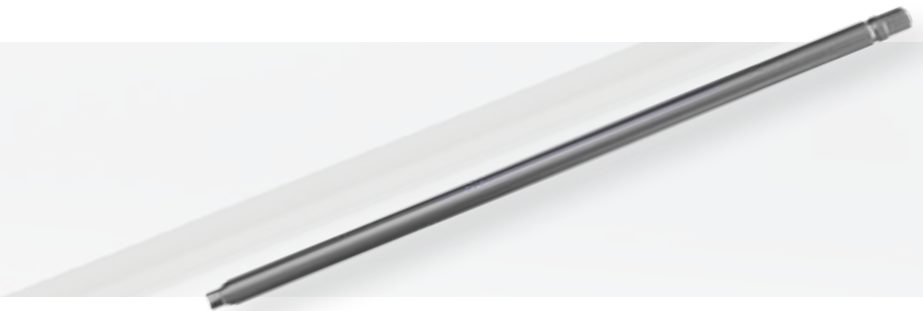
0105 - 0014

Nut Starter



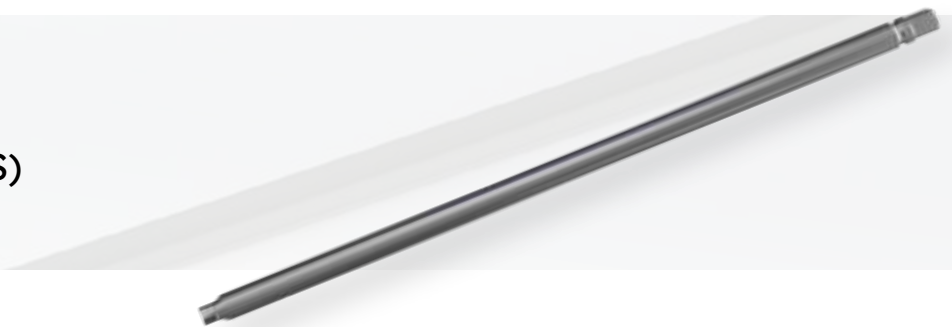
0105 - 0020

Nut Final Driver (L)



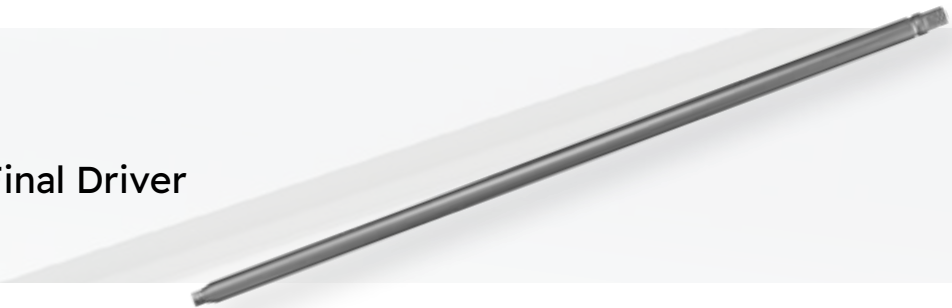
0105 - 0022

Nut Final Driver (S)



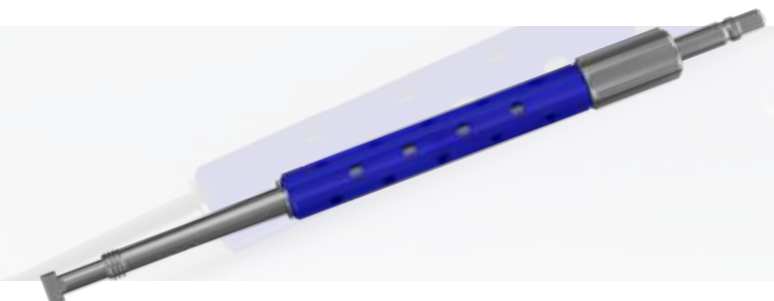
0105 - 0021

Poly Bone Screw Final Driver

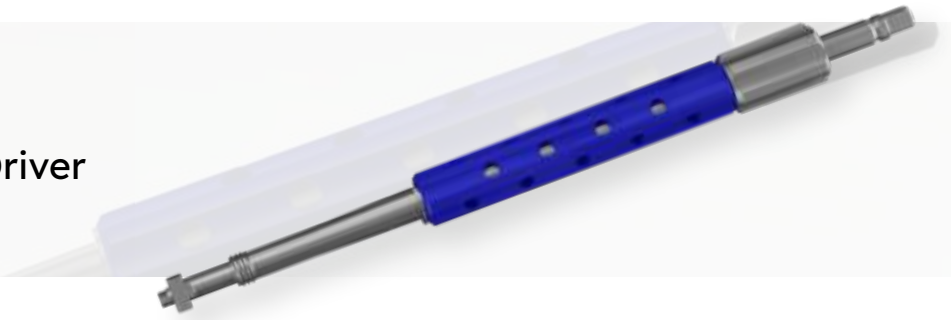


0105 - 0008

Mono - Axial Screw Driver



0105 - 0008
Poly - Axial Screw Driver



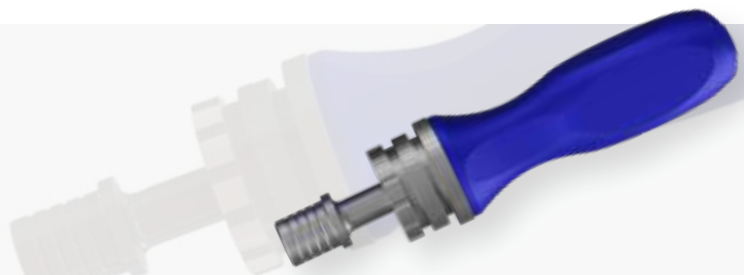
0105 - 0035
Poly Screw Aligner



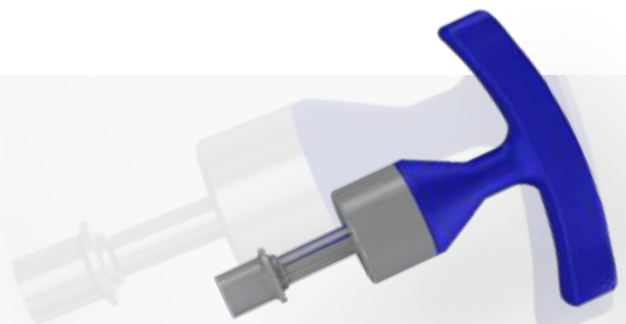
0105 - 0028
T-Handle



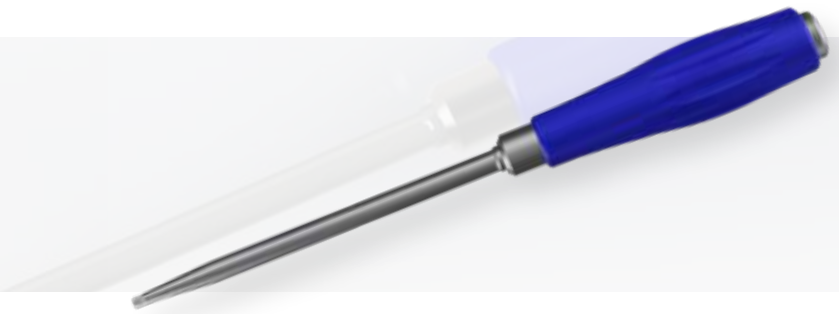
0105 - 0027
In-line Handle



0105 - 0026
Torque Wrench (12N)



0105 - 0007
Transverse link Driver



0105 - 0025
Nut Guide



0105 - 0011
Persuader



0105 - 0033
French Rod Bender



0105 - 0034
Rod Gripper



0105 - 0010
Reduction Cutter



0105 - 0032
Compressor



0105 - 0031
Distractor



0105 - 0029
Rod Holder





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 sales@solco.co.in

Corporate Office

5 & 6, 3rd Floor, B.Jadav Chambers, Above Sales India,
Ashram Road, Ahmedabad-380009, India.

Plant

Survey No. 1540, Village-Rajpur, B/s. Torrent Pharma,
Ahmedabad-Mehsana Highway, Tal. Kadi,
Dist: Mehsana-382715, Gujarat, India.