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OSTEOONYX 5.5 SYSTEM

SURGICAL TECHNIQUE GUIDE

F330102-1_A

OSTEO ONYX 5.5 SYSTEM

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Description:

The Osteo Onyx 5.5 System consist of pedicle screws (multi-axial, multi-axial long-arm, mono and long-arm), rods, locking bolt, cross-links and connectors. Various forms and sizes of these implants are
available, so that adaption can always be made to take into account the pathology and individual patient.

Materials:

The implants component of Osteo Onyx 5.5 System are manufactured from titanium (ASTM F136) and cobalt-chromium-molybdenum alloy (ASTM F1537).

Indications:

The Osteo Onyx 5.5 System is intended to provide immobilization and stabilization of spinal segments in skeletally mature patients as an adjunct to fusion in the treatment of the following acute and chronic instabilities or deformities of the thoracic, lumbar, and sacral spine: degenerative disc disease; spondylolisthesis; fracture; dislocation; scoliosis; kyphosis; spinal tumor; and failed previous fusion
(pseudarthrosis).

General Conditions Of Use:

- The implants must be implanted only by surgeons having undergone the necessary training in spinal surgery. Their use in implantation must be decided upon in accordance with the surgical and medical indication, the potential risks and limitations related to the this type of surgery, the contra-indications, side effects, and precautions defined, and in the knowledge of the nature and metallic, metallurgic and biological characteristics of the implants to be used.
- It is recommended the Osteo onyx 5.5 System should not be used together with implants from a different source, a different manufacturer, or made from a different material. If this should occur, Aurora Spine declines all responsibility.
- Under no circumstances may the implants be re-used; although the device may appear intact on removal, internal modifications due to the stresses and strains placed on any part of the device, or small defects may exists, which may lead to the fracture of the implant.
- The implants must be implanted only by surgeons having undergone the necessary training in spinal surgery. Their use in implantation must be decided upon in accordance with the surgical and medical indication, the potential risks and limitations related to the this type of surgery, the contra-indications, side effects, and precautions defined, and in the knowledge of the nature and metallic, metallurgic and biological characteristics of the implants to be used.
- It is recommended the Osteo Onyx 5.5 System should not be used together with implants from a different source, a different manufacturer, or made from a different material. If this should occur, Aurora Spine declines all responsibility.

Implant Sizes

- Top-loading, Top-tightening, Self-tapping screws
- Head Diameter: 13.5mm
- Up to 60 degrees of angulation
- Dual lead thread pattern for faster insertion
- Accommodate both 5.5 and 6.0 rods
- Multi-Axial to Mono Axial heads
- Choice of dual or single locking bolt

Poly-toMono Locking Pedicle Screw Heads

Polyaxial heads can lock to monoaxial. With the use of a 2-piece locking bolt, parallel compression, distraction and derotation maneuvers can be applied. This screw design eliminate need for mono-axial or uniplanar screws.

2-piece and 1-piece Locking Bolts

- Modified square thread design: Minimizes head splay and cross-threading
- Two type of locking bolts (2-piece or 1-piece)
- Hexalobular Torx drive fittings

2-piece Locking Bolt / 1-piece Locking Bolt

Cross Links and Construct Connectors

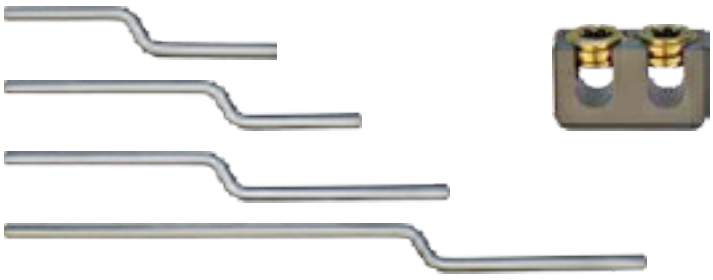
- Cross link size: seven adjustable length from 30mm to 67mm
- Rod connectors: axial, domino(parallel) and open rod option
- Offset connectors: challenging rod-screw alignment

Rods

- 5.5mm and 6.0mm rod diameter, in titanium and cobalt chromium alloy
- Pre-bent rods in lengths up to 200mm and straight rods in lengths up to 500mm
- Deformity Pre-bent rods in lengths 300, 400 and 500mm

LED Rods

- Easy extension with previous fusion
- Reduced risk of infection through a small incision



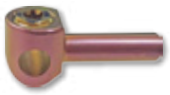
Iliac Screws

- Closed multi-axial screw
- Available screw diameter: 8.5, 9.5, 10.5mm, 60mm - 100mm length
- Provide 50° angulation in all direction
- Dual lead thread pattern for faster insertion

Offset Connector

Ø6.0	Ø5.5
93510-15	94510-15
93510-20	94510-20
93510-40	94510-40

Closed Offset Connector



Size	Ø6.0	Ø5.5
15mm	93515-15	94515-15
20mm	93515-20	94515-20
25mm	93515-25	94515-25
30mm	93515-30	94515-30
40mm	93515-40	94515-40

Axial Rod Connector

Ø6.0	93525
Ø5.5, Ø6.0	93525-10
Ø5.5	93525-20

Domino Rod Connector

Ø6.0	93520
Ø5.5, Ø6.0	93520-10
Ø5.5	93520-20

Open Rod Connector

Ø5.5, Ø6.0	93530

LED Rod Connector

Ø5.5, Ø6.0	93540

Locking Bolt for 5.5mm & 6.0mm

Locking Bolt	93110
Dual Locking Bolt	93120
Iliac Locking Bolt	93501

Pedicle Screws (Anodized)

6.0 Osteo Onyx Multi -Axial

Ø4.5	Ø5.0	Ø5.5	Ø6.0	Ø6.5	Ø7.0	Ø7.5	Ø8.5	Ø9.5	Ø10.5
93145-20									
93145-24	93150-24	93155-25							
93145-25	93150-25	93155-30	93160-30	93165-30	93170-30	93175-30	93185-30	93195-30	93105-30
93145-26	93150-26	93155-35	93160-35	93165-35	93170-35	93175-35	93185-35	93195-35	93105-35
93145-28	93150-28	93155-40	93160-40	93165-40	93170-40	93175-40	93185-40	93195-40	93105-40
93145-30	93150-30	93155-45	93160-45	93165-45	93170-45	93175-45	93185-45	93195-45	93105-45
93145-35	93150-35	93155-50	93160-50	93165-50	93170-50	93175-50	93185-50	93195-50	93105-50
93145-40	93150-40	93155-55	93160-55	93165-55	93170-55	93175-55	93185-55	93195-55	93105-55
93145-45	93150-45	93155-60	93160-60	93165-60	93170-60	93175-60	93185-60	93195-60	93105-60
93145-50	93150-50						93185-65	93195-65	93105-65
	93150-55						93185-70	93195-70	93105-70
							93185-75	93195-75	93105-75
							93185-80	93195-80	93105-80
							93185-85	93195-85	93105-85
							93185-90	93195-90	93105-90
							93185-95	93195-95	93105-95
							93185-100	93195-100	93105-100

6.0 Osteo Onyx Long Arm Multi -Axial

Ø4.5	Ø5.0	Ø5.5	Ø6.0	Ø6.5	Ø7.0	Ø7.5	Ø8.5	Ø9.5	Ø10.5
93245-20									
93245-24	93250-24	93255-25							
93245-25	93250-25	93255-30	93260-30	93265-30	93270-30	93275-30	93285-30	93295-30	93205-30
93245-26	93250-26	93255-35	93260-35	93265-35	93270-35	93275-35	93285-35	93295-35	93205-35
93245-28	93250-28	93255-40	93260-40	93265-40	93270-40	93275-40	93285-40	93295-40	93205-40
93245-30	93250-30	93255-45	93260-45	93265-45	93270-45	93275-45	93285-45	93295-45	93205-45
93245-35	93250-35	93255-50	93260-50	93265-50	93270-50	93275-50	93285-50	93295-50	93205-50
93245-40	93250-40	93255-55	93260-55	93265-55	93270-55	93275-55	93285-55	93295-55	93205-55
93245-45	93250-45	93255-60	93260-60	93265-60	93270-60	93275-60	93285-60	93295-60	93205-60
93245-50	93250-50						93285-65	93295-65	93205-65
	93250-55						93285-70	93295-70	93205-70
							93285-75	93295-75	93205-75
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							93285-85	93295-85	93205-85
							93285-90	93295-90	93205-90
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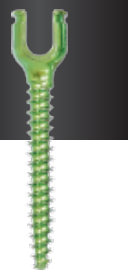
6.0 Osteo Onyx Mono



Ø4.5	Ø5.0	Ø5.5	Ø6.0	Ø6.5	Ø7.0	Ø7.5	Ø8.5	Ø9.5	Ø10.5
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93345-25	93350-25	93355-25							
93345-30	93350-30	93355-30	93360-30	93365-30	93370-30	93375-30	93385-30	93395-30	93305-30
93345-35	93350-35	93355-35	93360-35	93365-35	93370-35	93375-35	93385-35	93395-35	93305-35
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							93385-90	93395-90	93305-90
							93385-95	93395-95	93305-95
							93385-100	93395-100	93305-100

6.0 Osteo Onyx Long-Arm

Ø4.5	Ø5.0	Ø5.5	Ø6.0	Ø6.5	Ø7.0	Ø7.5	Ø8.5	Ø9.5	Ø10.5
93445-20									
93445-25	93450-25	93455-25							
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93445-35	93450-35	93455-35	93460-35	93465-35	93470-35	93475-35	93485-35	93495-35	93405-35
93445-40	93450-40	93455-40	93460-40	93465-40	93470-40	93475-40	93485-40	93495-40	93405-40
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							93485-80	93495-80	93405-80
							93485-85	93495-85	93405-85
							93485-90	93495-90	93405-90
							93485-95	93495-95	93405-95
							93485-100	93495-100	93405-100

Pedicle Screws (Anodized)

5.5 Osteo Onyx Multi -Axial

Ø4.5	Ø5.0	Ø5.5	Ø6.0	Ø6.5	Ø7.0	Ø7.5	Ø8.5	Ø9.5	Ø10.5
94145-20									
94145-24	94150-24	94155-25							
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94145-26	94150-26	94155-35	94160-35	94165-35	94170-35	94175-35	94185-35	94195-35	94105-35
94145-28	94150-28	94155-40	94160-40	94165-40	94170-40	94175-40	94185-40	94195-40	94105-40
94145-30	94150-30	94155-45	94160-45	94165-45	94170-45	94175-45	94185-45	94195-45	94105-45
94145-35	94150-35	94155-50	94160-50	94165-50	94170-50	94175-50	94185-50	94195-50	94105-50
94145-40	94150-40	94155-55	94160-55	94165-55	94170-55	94175-55	94185-55	94195-55	94105-55
94145-45	94150-45	94155-60	94160-60	94165-60	94170-60	94175-60	94185-60	94195-60	94105-60
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	94150-55						94185-70	94195-70	94105-70
							94185-75	94195-75	94105-75
							94185-80	94195-80	94105-80
							94185-85	94195-85	94105-85
							94185-90	94195-90	94105-90
							94185-95	94195-95	94105-95
							94185-100	94195-100	94105-100

5.5 Osteo Onyx Long Arm Multi -Axial

Ø4.5	Ø5.0	Ø5.5	Ø6.0	Ø6.5	Ø7.0	Ø7.5	Ø8.5	Ø9.5	Ø10.5
94245-20									
94245-24	94250-24	94255-25							
94245-25	94250-25	94255-30	94260-30	94265-30	94270-30	94275-30	94285-30	94295-30	94205-30
94245-26	94250-26	94255-35	94260-35	94265-35	94270-35	94275-35	94285-35	94295-35	94205-35
94245-28	94250-28	94255-40	94260-40	94265-40	94270-40	94275-40	94285-40	94295-40	94205-40
94245-30	94250-30	94255-45	94260-45	94265-45	94270-45	94275-45	94285-45	94295-45	94205-45
94245-35	94250-35	94255-50	94260-50	94265-50	94270-50	94275-50	94285-50	94295-50	94205-50
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94245-45	94250-45	94255-60	94260-60	94265-60	94270-64	94275-60	94285-60	94295-60	94205-60
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							94285-85	94295-85	94205-85
							94285-90	94295-90	94205-90
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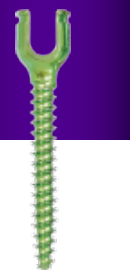
5.5 Osteo Onyx Mono



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94345-25	94350-25	94355-25							
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94345-35	94350-35	94355-35	94360-35	94365-35	94370-35	94375-35	94385-35	94395-35	94305-35
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							94385-90	94395-90	94305-90
							94385-95	94395-95	94305-95
							94385-100	94395-100	94305-100

5.5 Osteo Onyx Long-Arm

Ø4.5	Ø5.0	Ø5.5	Ø6.0	Ø6.5	Ø7.0	Ø7.5	Ø8.5	Ø9.5	Ø10.5
94445-20									
94445-25	94450-25	94455-25							
94445-30	94450-30	94455-30	94460-30	94465-30	94470-30	94475-30	94485-30	94495-30	94405-30
94445-35	94450-35	94455-35	94460-35	94465-35	94470-35	94475-35	94485-35	94495-35	94405-35
94445-40	94450-40	94455-40	94460-40	94465-40	94470-40	94475-40	94485-40	94495-40	94405-40
94445-45	94450-45	94455-45	94460-45	94465-45	94470-45	94475-45	94485-45	94495-45	94405-45
94445-50	94450-50	94455-50	94460-50	94465-50	94470-50	94475-50	94485-50	94495-50	94405-50
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							94485-85	94495-85	94405-85
							94485-90	94495-90	94405-90
							94485-95	94495-95	94405-95
							94485-100	94495-100	94405-100

Pedicle Screws (Non-anodized)

6.0 Osteo Onyx Multi -Axial

Ø4.5	Ø5.0	Ø5.5	Ø6.0	Ø6.5	Ø7.0	Ø7.5	Ø8.5	Ø9.5	Ø10.5
95145-20									
95145-24	95150-24	95155-25							
95145-25	95150-25	95155-30	95160-30	95165-30	95170-30	95175-30	95185-30	95195-30	95105-30
95145-26	95150-26	95155-35	95160-35	95165-35	95170-35	95175-35	95185-35	95195-35	95105-35
95145-28	95150-28	95155-40	95160-40	95165-40	95170-40	95175-40	95185-40	95195-40	95105-40
95145-30	95150-30	95155-45	95160-45	95165-45	95170-45	95175-45	95185-45	95195-45	95105-45
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95145-40	95150-40	95155-55	95160-55	95165-55	95170-55	95175-55	95185-55	95195-55	95105-55
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							95185-90	95195-90	95105-90
							95185-95	95195-95	95105-95
							95185-100	95195-100	95105-100

6.0 Osteo Onyx Long Arm Multi -Axial

Ø4.5	Ø5.0	Ø5.5	Ø6.0	Ø6.5	Ø7.0	Ø7.5	Ø8.5	Ø9.5	Ø10.5
95245-20									
95245-24	95250-24	95255-25							
95245-25	95250-25	95255-30	95260-30	95265-30	95270-30	95275-30	95285-30	95295-30	95205-30
95245-26	95250-26	95255-35	95260-35	95265-35	95270-35	95275-35	95285-35	93295-35	95205-35
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95245-45	95250-45	95255-60	95260-60	95265-60	95270-65	95275-60	95285-60	95295-60	95205-60
95245-50	95250-50						95285-65	95295-65	95205-65
	95250-55						95285-70	95295-70	95205-70
							95285-75	95295-75	95205-75
							95285-80	95295-80	95205-80
							95285-85	95295-85	95205-85
							95285-90	95295-90	95205-90
							95285-95	95295-95	95205-95
							95285-100	95295-100	95205-100

6.0 Osteo Onyx Mono

Ø4.5	Ø5.0	Ø5.5	Ø6.0	Ø6.5	Ø7.0	Ø7.5	Ø8.5	Ø9.5	Ø10.5
95345-20									
95345-25	95350-25	95355-25							
95345-30	95350-30	95355-30	95360-30	95365-30	95370-30	95375-30	95385-30	95395-30	95305-30
95345-35	95350-35	95355-35	95360-35	95365-35	95370-35	95375-35	95385-35	95395-35	95305-35
95345-40	95350-40	95355-40	95360-40	95365-40	95370-40	95375-40	95385-40	95395-40	95305-40
95345-45	95350-45	95355-45	95360-45	95365-45	95370-45	95375-45	95385-45	95395-45	95305-45
95345-50	95350-50	95355-50	95360-50	95365-50	95370-50	95375-50	95385-50	95395-50	95305-50
	95350-55	95355-55	95360-55	95365-55	95370-55	95375-55	95385-55	95395-55	95305-55
		95355-60	95360-65	95365-60	95370-60	95375-60	95385-60	95395-60	95305-60
							95385-65	95395-65	95305-65
							95385-70	95395-70	95305-70
							95385-75	95395-75	95305-75
							95385-80	95395-80	95305-80
							95385-85	95395-85	95305-85
							95385-90	95395-90	95305-90
							95385-95	95395-95	95305-95
							95385-100	95395-100	95305-100

6.0 Osteo Onyx Long-Arm

Ø4.5	Ø5.0	Ø5.5	Ø6.0	Ø6.5	Ø7.0	Ø7.5	Ø8.5	Ø9.5	Ø10.5
95445-20									
95445-25	95450-25	95455-25							
95445-30	95450-30	95455-30	95460-30	95465-30	95470-30	95475-30	95485-30	95495-30	95405-30
95445-35	95450-35	95455-35	95460-35	95465-35	95470-35	95475-35	95485-35	95495-35	95405-35
95445-40	95450-40	95455-40	95460-40	95465-40	95470-40	95475-40	95485-40	95495-40	95405-40
95445-45	95450-45	95455-45	95460-45	95465-45	95470-45	95475-45	95485-45	95495-45	95405-45
95445-50	95450-50	95455-50	95460-50	95465-50	95470-50	95475-50	95485-50	95495-50	95405-50
	95450-55	95455-55	95460-55	95465-55	95470-55	95475-55	95485-55	95495-55	95405-55
		95455-60	95460-60	95465-60	95470-60	95475-60	95485-60	95495-60	95405-60
							95485-65	95495-65	95405-65
							95485-70	95495-70	95405-70
							95485-75	95495-75	95405-75
							95485-80	95495-80	95405-80
							95485-85	95495-85	95405-85
							95485-90	95495-90	95405-90
							95485-95	95495-95	95405-95
							95485-100	95495-100	95405-100

Pedicle Screws (Non-anodized)

5.5 Osteo Onyx Multi -Axial

Ø4.5	Ø5.0	Ø5.5	Ø6.0	Ø6.5	Ø7.0	Ø7.5	Ø8.5	Ø9.5	Ø10.5
96145-20									
96145-24	96150-24	96155-25							
96145-25	96150-25	96155-30	96160-30	96165-30	96170-30	96175-30	96185-30	96195-30	96105-30
96145-26	96150-26	96155-35	96160-35	96165-35	96170-35	96175-35	96185-35	96195-35	96105-35
96145-28	96150-28	96155-40	96160-40	96165-40	96170-40	96175-40	96185-40	96195-40	96105-40
96145-30	96150-30	96155-45	96160-45	96165-45	96170-45	96175-45	96185-45	96195-45	96105-45
96145-35	96150-35	96155-50	96160-50	96165-50	96170-50	96175-50	96185-50	96195-50	96105-50
96145-40	96150-40	96155-55	96160-55	96165-55	96170-55	96175-55	96185-55	96195-55	96105-55
96145-45	96150-45	96155-60	96160-60	96165-60	96170-60	96175-60	96185-60	96195-60	96105-60
96145-50	96150-50						96185-65	96195-65	96105-65
	96150-55						96185-70	96195-70	96105-70
							96185-75	96195-75	96105-75
							96185-80	96195-80	96105-80
							96185-85	96195-85	96105-85
							96185-90	96195-90	96105-90
							96185-95	96195-95	96105-95
							96185-100	96195-100	96105-100

5.5 Osteo Onyx Long Arm Multi -Axial

Ø4.5	Ø5.0	Ø5.5	Ø6.0	Ø6.5	Ø7.0	Ø7.5	Ø8.5	Ø9.5	Ø10.5
96245-20									
96245-24	96250-24	96255-25							
96245-25	96250-25	96255-30	96260-30	96265-30	96270-30	96275-30	96285-30	96295-30	96205-30
96245-26	96250-26	96255-35	96260-35	96265-35	96270-35	96275-35	96285-35	96295-35	96205-35
96245-28	96250-28	96255-40	96260-40	96265-40	96270-40	96275-40	96285-40	96295-40	96205-40
96245-30	96250-30	96255-45	96260-45	96265-45	96270-45	96275-45	96285-45	96295-45	96205-45
96245-35	96250-35	96255-50	96260-50	96265-50	96270-50	96275-50	96285-50	96295-50	96205-50
96245-40	96250-40	96255-55	96260-55	96265-55	96270-55	96275-55	96285-55	96295-55	96205-55
96245-45	96250-45	96255-60	96260-60	96265-60	96270-64	96275-60	96285-60	96295-60	96205-60
96245-50	96250-50						96285-65	96295-65	96205-65
	96250-55						96285-70	96295-70	96205-70
							96285-75	96295-75	96205-75
							96285-80	96295-80	96205-80
							96285-85	96295-85	96205-85
							96285-90	96295-90	96205-90
							96285-95	96295-95	96205-95
							96285-100	96295-100	96205-100

5.5 Osteo Onyx Mono

Ø4.5	Ø5.0	Ø5.5	Ø6.0	Ø6.5	Ø7.0	Ø7.5	Ø8.5	Ø9.5	Ø10.5
96345-20									
96345-25	96350-25	96355-25							
96345-30	96350-30	96355-30	96360-30	96365-30	96370-30	96375-30	96385-30	96395-30	96305-30
96345-35	96350-35	96355-35	96360-35	96365-35	96370-35	96375-35	96385-35	96395-35	96305-35
96345-40	96350-40	96355-40	96360-40	96365-40	96370-40	96375-40	96385-40	96395-40	96305-40
96345-45	96350-45	96355-45	96360-45	96365-45	96370-45	96375-45	96385-45	96395-45	96305-45
96345-50	96350-50	96355-50	96360-50	96365-50	96370-50	96375-50	96385-50	96395-50	96305-50
	96350-55	96355-55	96360-55	96365-55	96370-55	96375-55	96385-55	96395-55	96305-55
		96355-60	96360-60	96365-60	96370-60	96375-60	96385-60	96395-60	96305-60
							96385-65	96395-65	96305-65
							96385-70	96395-70	96305-70
							96385-75	96395-75	96305-75
							96385-80	96395-80	96305-80
							96385-85	96395-85	96305-85
							96385-90	96395-90	96305-90
							96385-95	96395-95	96305-95
							96385-100	96395-100	96305-100

5.5 Osteo Onyx Long-Arm

Ø4.5	Ø5.0	Ø5.5	Ø6.0	Ø6.5	Ø7.0	Ø7.5	Ø8.5	Ø9.5	Ø10.5
96445-20									
96445-25	96450-25	96455-25							
96445-30	96450-30	96455-30	96460-30	96465-30	96470-30	96475-30	96485-30	96495-30	96405-30
96445-35	96450-35	96455-35	96460-35	96465-35	96470-35	96475-35	96485-35	96495-35	96405-35
96445-40	96450-40	96455-40	96460-40	96465-40	96470-40	96475-40	96485-40	96495-40	96405-40
96445-45	96450-45	96455-45	96460-45	96465-45	96470-45	96475-45	96485-45	96495-45	96405-45
96445-50	96450-50	96455-50	96460-50	96465-50	96470-50	96475-50	96485-50	96495-50	96405-50
	96450-55	96455-55	96460-55	96465-55	96470-55	96475-55	96485-55	96495-55	96405-55
		96455-60	96460-66	96465-60	96470-60	96475-60	96485-60	96495-60	96405-60
							96485-65	96495-65	96405-65
							96485-70	96495-70	96405-70
							96485-75	96495-75	96405-75
							96485-80	96495-80	96405-80
							96485-85	96495-85	96405-85
							96485-90	96495-90	96405-90
							96485-95	96495-95	96405-95
							96485-100	96495-100	96405-100

Cross Link

Ø6.0	32mm	35mm	38mm	41mm	45mm	50mm	57mm
	93130-32	93130-35	93130-38	93130-41	93130-45	93130-50	93130-57

Ø5.5	32mm	35mm	38mm	41mm	45mm	50mm	57mm
	94130-32	94130-35	94130-38	94130-41	94130-45	94130-50	94130-57

LED Rod

Ø6.0	40-40mm	40-70mm	70-70mm	70-140mm
	61104-04	61104-07	61107-07	61107-14

Ø5.5	40-40mm	40-70mm	70-70mm	70-140mm
	81104-04	81104-07	81107-07	81107-14

Deformity Rod

Titanim Rod					Cobalt Chromium Rod			
Ø6.0 Deformity Rod	Ø6.0 Deformity Hex Rod	Ø5.5 Deformity Rod	Ø5.5 Deformity Hex Rod	Size	Ø6.0 Deformity Rod	Ø6.0 Deformity Hex Rod	Ø5.5 Deformity Rod	Ø5.5 Deformity Hex Rod
61125-300	61125-300H	82125-300	82125-300H	300mm	61325-300	61325-300H	82325-300	82325-300H
61125-400	61125-400H	82125-400	82125-400H	400mm	61325-400	61325-400H	82325-400	82325-400H
61125-500	61125-500H	82125-500	82125-500H	500mm	61325-500	61325-500H	82325-500	82325-500H

Iliac Multi-Axial Screw

	Ø8.5mm	Ø9.5mm	Ø10.5mm
60mm	93585-06	93595-06	93505-06
70mm	93585-07	93595-07	93505-07
80mm	93585-08	93595-08	93505-08
90mm	93585-09	93595-09	93505-09
100mm	93585-10	93595-10	93505-10

Iliac Non-Anodized Multi-Axial Screw

	Ø8.5mm	Ø9.5mm	Ø10.5mm
60mm	95585-06	95595-06	95505-06
70mm	95585-07	95595-07	95505-07
80mm	95585-08	95595-08	95505-08
90mm	95585-09	95595-09	95505-09
100mm	95585-10	95595-10	95505-10

Titanium Rod

Ø6.0 Rod	Ø6.0 Pre-bent Rod	Ø6.0 Hex Rod	Ø6.0 Pre-bent Hex Rod	Size	Ø5.5 Rod	Ø5.5 Pre-bent Rod	Ø5.5 Hex Rod	Ø5.5 Pre-bent Hex Rod
61120-03	61121-030	61120-03H	61121-030H	30mm	82120-03	82130-030	82120-03H	82130-030H
61120-035	61121-035	61120-035H	61121-035H	35mm	82120-035	82130-035	82120-035H	82130-035H
61120-04	61121-040	61120-04H	61121-040H	40mm	82120-04	82130-040	82120-04H	82130-040H
61120-045	61121-045	61120-045H	61121-045H	45mm	82120-045	82130-045	82120-045H	82130-045H
61120-05	61121-050	61120-05H	61121-050H	50mm	82120-05	82130-050	82120-05H	82130-050H
	61121-055		61121-055H	55mm		82130-055		82130-055H
61120-06	61121-060	61120-06H	61121-060H	60mm	82120-06	82130-060	82120-06H	82130-060H
	61121-065		61121-065H	65mm		82130-065		82130-065H
61120-07	61121-070	61120-07H	61121-070H	70mm	82120-07	82130-070	82120-07H	82130-070H
	61121-075		61121-075H	75mm		82130-075		82130-075H
61120-08	61121-080	61120-08H	61121-080H	80mm	82120-08	82130-080	82120-08H	82130-080H
61120-09	61121-090	61120-09H	61121-090H	90mm	82120-09	82130-090	82120-09H	82130-090H
61120-10	61121-100	61120-10H	61121-100H	100mm	82120-10	82130-100	82120-10H	82130-100H
61120-11	61121-110	61120-11H	61121-110H	110mm	82120-11	82130-110	82120-11H	82130-110H
61120-12	61121-120	61120-12H	61121-120H	120mm	82120-12	82130-120	82120-12H	82130-120H
61120-13	61121-130	61120-13H	61121-130H	130mm	82120-13	82130-130	82120-13H	82130-130H
61120-14	61121-140	61120-14H	61121-140H	140mm	82120-14	82130-140	82120-14H	82130-140H
61120-15	61121-150	61120-15H	61121-150H	150mm	82120-15	82130-150	82120-15H	82130-150H
61120-16	61121-160	61120-16H	61121-160H	160mm	82120-16	82130-160	82120-16H	82130-160H
61120-17	61121-170	61120-17H	61121-170H	170mm	82120-17	82130-170	82120-17H	82130-170H
61120-18	61121-180	61120-18H	61121-180H	180mm	82120-18	82130-180	82120-18H	82130-180H
61120-19	61121-190	61120-19H	61121-190H	190mm	82120-19	82130-190	82120-19H	82130-190H
61120-20	61121-200	61120-20H	61121-200H	200mm	82120-20	82130-200	82120-20H	82130-200H
61120-22		61120-22H		220mm	82120-22		82120-22H	
61120-24		61120-24H		240mm	82120-24		82120-24H	
61120-25		61120-25H		250mm	82120-25		82120-25H	
61120-26		61120-26H		260mm	82120-26		82120-26H	
61120-28		61120-28H		280mm	82120-28		82120-28H	
61120-30		61120-30H		300mm	82120-30		82120-30H	
61120-40		61120-40H		400mm	82120-40		82120-40H	
61120-50		61120-50H		500mm	82120-50		82120-50H	

Cobalt Chromium Rod

Ø6.0 Rod	Ø6.0 Pre-bent Rod	Ø6.0 Hex Rod	Ø6.0 Pre-bent Hex Rod	Size	Ø5.5 Rod	Ø5.5 Pre-bent Rod	Ø5.5 Hex Rod	Ø5.5 Pre-bent Hex Rod
61320-03	61321-030	61320-03H	61321-030H	30mm	82320-03	82330-030	82320-03H	82330-030H
61320-035	61321-035	61320-035H	61321-035H	35mm	82320-035	82330-035	82320-035H	82330-035H
61320-04	61321-040	61320-04H	61321-040H	40mm	82320-04	82330-040	82320-04H	82330-040H
61320-045	61321-045	61320-045H	61321-045H	45mm	82320-045	82330-045	82320-045H	82330-045H
61320-05	61321-050	61320-05H	61321-050H	50mm	82320-05	82330-050	82320-05H	82330-050H
	61321-055		61321-055H	55mm		82330-055		82330-055H
61320-06	61321-060	61320-06H	61321-060H	60mm	82320-06	82330-060	82320-06H	82330-060H
	61321-065		61321-065H	65mm		82330-065		82330-065H
61320-07	61321-070	61320-07H	61321-070H	70mm	82320-07	82330-070	82320-07H	82330-070H
	61321-075		61321-075H	75mm		82330-075		82330-075H
61320-08	61321-080	61320-08H	61321-080H	80mm	82320-08	82330-080	82320-08H	82330-080H
61320-09	61321-090	61320-09H	61321-090H	90mm	82320-09	82330-090	82320-09H	82330-090H
61320-10	61321-100	61320-10H	61321-100H	100mm	82320-10	82330-100	82320-10H	82330-100H
61320-11	61321-110	61320-11H	61321-110H	110mm	82320-11	82330-110	82320-11H	82330-110H
61320-12	61321-120	61320-12H	61321-120H	120mm	82320-12	82330-120	82320-12H	82330-120H
61320-13	61321-130	61320-13H	61321-130H	130mm	82320-13	82330-130	82320-13H	82330-130H
61320-14	61321-140	61320-14H	61321-140H	140mm	82320-14	82330-140	82320-14H	82330-140H
61320-15	61321-150	61320-15H	61321-150H	150mm	82320-15	82330-150	82320-15H	82330-150H
61320-16	61321-160	61320-16H	61321-160H	160mm	82320-16	82330-160	82320-16H	82330-160H
61320-17	61321-170	61320-17H	61321-170H	170mm	82320-17	82330-170	82320-17H	82330-170H
61320-18	61321-180	61320-18H	61321-180H	180mm	82320-18	82330-180	82320-18H	82330-180H
61320-19	61321-190	61320-19H	61321-190H	190mm	82320-19	82330-190	82320-19H	82330-190H
61320-20	61321-200	61320-20H	61321-200H	200mm	82320-20	82330-200	82320-20H	82330-200H
61320-22		61320-22H		220mm	82320-22		82320-22H	
61320-24		61320-24H		240mm	82320-24		82320-24H	
61320-25		61320-25H		250mm	82320-25		82320-25H	
61320-26		61320-26H		260mm	82320-26		82320-26H	
61320-28		61320-28H		280mm	82320-28		82320-28H	
61320-30		61320-30H		300mm	82320-30		82320-30H	
61320-40		61320-40H		400mm	82320-40		82320-40H	
61320-50		61320-50H		500mm	82320-50		82320-50H	

Instruments

Awl 51640-08

Straight Probe 51660-10
Bent Probe 51660

Straight Probe(Lenke) 16020-20 (Option)
Bent Probe(Lenke) 16020-10 (Option)

Ball Point Tester 51680-20

Left Marker 81655-10

Right Marker 81655-20

3.5mm Tap 11053
4.5mm Tap 11054
5.0mm Tap 11075
5.5mm Tap 11055
6.0mm Tap 11076
6.5mm Tap 11056
7.0mm Tap 11077
7.5mm Tap 11057
8.5mm Tap 11058
9.5mm Tap 11059
10.5mm Tap 11050

3.5mm Tap 11063(short)
4.5mm Tap 11064(short)
5.0mm Tap 11085(short)
5.5mm Tap 11065(short)
6.0mm Tap 11086(short)
6.5mm Tap 11066(short)
7.0mm Tap 11087(short)
7.5mm Tap 11067(short)
8.5mm Tap 11068(short)
9.5mm Tap 11069(short)
10.5mm Tap 11060(short)

Multi-Axial Screw Driver 10150

Long Arm Multi Screw Driver 10160

Mono Screw Driver 10170

Long-Arm Screw Driver 10180

Multi-Axial Screw Driver 10150 -10
(Option) 10150 -20 (short)

Long Arm Multi Screw Driver 10160 -10
(Option) 10160 -20 (short)

Mono Screw Driver 10170-10 (Option)

Long-Arm Screw Driver 10180-10 (Option)

Multi-Axial Screw Driver 10210 (short)
(Option) 10210-10

Long Arm Multi Screw Driver 10220 (short)
(Option) 10220-10

Power Rod Forceps 51750-10 (6.0mm)

Rod Forceps 51750 -20 (6.0mm)

French Rod Bender 51710 (option)

French Rod Bender 51710-20

Rod Bender 51890 (option)

Compressor 51725

Distractor 51735

Rod Gripper 51740 (option)

Rod Pusher 51840

Rod Rocker 12090

SC Reducer 12040 (option)

Release 12110 (option)

Derotator handle 14080 (option)

Spinner 14090 (option)

Reducer T-Wrench 14020 (option)

Reducer 12170

Anti-Torque 12100
12100-55

Anti-Torque 12120 (Option)
12120-55 (Option)

Dual Locking Wrench 10100
10100-20 (short)
10100-99

Iliac Screw Driver 10120
10120-20 (short)

Pick Up Wrench 10140
10140-10 (Short)

Intermediate Screw Driver 10190

Alignment Driver 10200 (option)

Long-Arm Breaker 14100 (option)

Instruments

Double Starter 10130
10130-20 (short)

Final Wrench (BT30) 10090
10090-20 (short)
10090-99

Final Wrench (BT20) 10110
10110-20 (short)
10110-99

Rotation Sleeve 12130

Reducer Stick 12140

Rotation Handle 14120 (Option)

Derotation Clip 14110-01 (Option)
14110-02 (Option)
14110-03 (Option)

Clip Wrench 14130 (Option)

Spinner 14090-99 (option)

Spanner 61720 (Option)

Reducer 12160 (Option)

Reducer 12160-10 (Option)

I-type Ratchet Handle 82520

T-type Ratchet Handle 82530

T-Torque Handle 82630 (option)
82630-75 (option)

Approach to Spine

A plan should be created to determine the optimum approach and implant construct. The appropriate implants must be selected based on patient anatomy and method of correction. Before the procedure, the patient is placed under general anesthesia and positioned prone. The surgical area is carefully cleaned and an incision is made at the appropriate levels.

Pedicle Screw Placement

Identify pedicles and remove bone and soft tissue using standard instruments. Osteo Onyx screw thread consists of a dual lead thread and is self-tapping. However, pedicles may be tapped if desired.
Using instruments from the Osteo Onyx System, prepare the pedicle for the screw insertion by perforating the pedicle cortex and opening the pedicle pathway.
Load the Pedicle Screw Driver with the correct screw size and drive the screw into the prepared pedicle.
Note: The Osteo Onyx Pedicle Driver must be used for placing Osteo Onyx pedicle screws.

Locking Caps

Osteo Onyx provides two types of locking caps(also called locking bolts). The one-piece locking cap provides a traditional locking mechanism, while the two-piece locking cap allows the multiaxial screws to be locked into a monoaxial position with the rod in place but still allows for rod movement and manipulation. This eliminates the need for monoaxial or uniplanar screws. All one-piece locking caps should be final tightened to 10Nm(88 in-lbs) while the two-piece locking cap's outer component should be final tightened to 10Nm(88 in-lbs) while the inner set screw should be final tightened 7.5Nm(66 in-lbs).

Rod Insertion

Once the screws are in place, the Rod Template can be used to determine the proper length and contour of the rod. Alternatively, the rod may be contoured to the desired sagittal alignment without the use of the rod template. S rods may assist in the contouring of longer rods.
The rod is contoured to match the rod template using the Rod Bender.
The contoured rod is inserted into the screws beginning from either end of the construct. The rod should be inserted into the implants that require minimal or no rod reduction first.
Locking caps are inserted into the implant using the Double Starter. Caps are inserted first into implants, and the rod is seated well in the implant, so minimal to no reduction is required. The Rod Reducer may be used to assist in the insertion of the rod to assist in more difficult reduction situations.
Once a locking cap is inserted into an implant it is provisionally tightened. Final tightening will occur later in the procedure.

Note: Verify the Locking Caps are oriented with the laser marking upward and visible to ensure that the caps are inserted in the correct orientation.

Rod Reduction

The Osteo Onyx System has multiple options for rod reduction. The rod reduction instruments are designed to assist in seating the rod into the implant.

OPTION A: IMPLANT ROCKER

To use the Implant Rocker, place the instrument on the implant and tilt the Implant Rocker to persuade the rod into the implant until a Locking Cap can be inserted. Insert a locking cap and remove the Implant Rocker from the screw.

OPTION B: ROD REDUCER

Place the Rod Reducer over the implant head and push it down until the instrument attaches to the screw tulip. Once the instrument is in place, squeeze the handles together to reduce the rod into the implant head.

OPTION C: THREADED ROD REDUCER

To use, place two-piece reduction clip and reducer onto the tulip. The initial position of the internal piece should be backed up or allow enough room to engage the tulip without touching the rod. Once fully attached the threaded portion can be used to reduce the rod. A hex attachment may be used along with appropriate handles to assist.
Once the rod is fully seated into the tulip, a Locking Cap can be inserted through the cannula of the Rod reducer and provisionally tightened.
The Osteo Onyx Reduction Head(also called long arm) screw can be used during a reduction procedure to assist. Reduction head screws are inserted in the same manner as the Osteo Onyx multiaxial pedicle screws but should be used with the long arm multi screwdriver.
Once in place, the Reduction Head will perform rod reduction by placing the rod and inserting a Locking Cap into the screw head. Tighten the cap until the rod is fully seated in the screw head.
Note: After the rod has been reduced, the tabs of the Reduction Head screw should be removed.

Global Derotation

Global derotation maneuvers are used to translate a coronal plane deformity into the naturally curved sagittal plane by rotating the rod within the construct.
After the rod is inserted and the locking caps are in place, the rod can be rotated into final position. To rotate the rod, two Rod Grippers are used at opposite ends of the construct. The rotation should be performed slowly to avoid injury and maintain proper rod placement.
Note: The Hex Wrench can also be used to aid in rod rotation. The Hex Wrench can be placed on the end of the rod which has a matching hex feature.

Once the rod is in the final position, some sets screws should be tightened to hold the correction. Compression and/or distraction may be performed for additional correction.
The second rod is then inserted to stabilize the construct. Verify all implant positions and make any necessary adjustments prior to the final tightening of all the locking caps.

Segmental Derotation

The Osteo Onyx Vertebral Derotation Instruments can be used for axial rotation in scoliosis surgery. Segmental derotation can be performed with one or both rods in place.
Derotation instruments are placed onto the screws on both sides of the same vertebral body. The derotation instruments are linked together to equally distribute the force of the correction over both screws.
Axial derotation of vertebral bodies relative to each other is achieved by holding one segment stationary(via derotation instruments) while the other derotation instruments are used to rotate the vertebral body relative to the stationary vertebral body.
The correction is held by tightening the Locking Caps.

Compression or Distraction

After the rod is secured into the implants compression and/or distraction can be utilized for additional correction. Once compression and/or distraction has been completed, locking caps should be final tightened.

Final Tightening

Final tightening is performed once the spine is fixed in a satisfactory position. Using the anti-torque and the T-handled Torque Wrench, tighten each locking cap until an audible click is heard. The locking caps are final tightened to 10 Nm (88 in-lbs.) while all smaller set screws should be final tightened to 7.5Nm (66 in-lbs).
Note: The anti-torque must be used for final tightening.
Confirm the anti-torque is seated appropriately on the tulip. Failure to seat the anti-torque may lead to sets screws not being properly secured, and loosening of the construct could occur.
The Osteo Onyx crosslink is designed to increase rotational stiffness and can assist in stabilizing the construct. Select the approriate length crosslink and place onto the rod within the construct in the desired location. The cross link is final tightened to 7.5Nm(66 in-lbs).

Iliac Screw Placement

Create the appropriate anatomical preparation by creating a notch in the iliac wing to countersink the head of the screw to prevent prominence. Although the iliac screws are self-tapping, additional tapping of the prepared hole can assist with screw insertion.
Select the appropriate diameter screw to ensure adequate fixation. Iliac screws range from 6.5mm to 10.5mm in diameter and from 60mm up to 100mm in length.

Note: 11.5 and 12.5 Iliac screws along with 110mm and 120mm lengths are special order.
Cannulated versions of the Iliac screws are available in 8.5mm to 10.5mm Diameters and 60mm to 80mm lengths.
Make sure to place the Iliac Screw using the appropriate Screw Driver(Open vs. Closed).
Lateral connectors may be used to assist in linking a screw to the rod and construction. The excess rod on the lateral connector may need to be cut and/or contoured to ensure minimal prominence and appropriate placement.
Place the Lateral Connector onto the rod and secure it in place with a locking cap for the open connector and internal set screw for the closed or offset version. The Lateral Connector is then seated into the Iliac Screw and secured with a Locking Cap. Open locking caps are then final tightened to 10Nm(88 in-lbs). The closed iliac connector is final tightened 7.5Nm(66 in-lbs).

Axial Connectors

The axial connectors may be used to join 5.5mm and/or 6.0mm diameter titanium and cobalt chrome rods. The Axial Connector implant is final tightened to 7.5Nm(66 in-lbs).

Parallel/ Domino Connectors

The parallel/ domino rod connectors may be used to join 5.5mm and/or 6.0mm diameter rods that are parallel to one another. The implants come in open-open, closed-closed, and closed-open styles. The open-to-open and closed-to-open versions require locking caps to secure, while the closed version should come with preloaded set screws. All locking caps should be final tightened to 10Nm(88 lbs) while all preloaded set screws should be final tightened to 7.5Nm(66 in-lbs).

Removal of Implants

Osteo Onyx implants are removed in the same manner they are implanted. The locking caps should be loosened using the Anti-torque and Final Locking Cap Driver.
Note: Starter Drivers should never be used to loosen locking caps or connector screws.
Once the locking caps have been removed, the rods can be removed. After the rods have been removed, the pedicle screws can be removed by attaching the Multi Axial Screw Driver to the screws and rotating counterclockwise.
Rod-to-rod connectors should be removed using the appropriate Driver.

OSTEOONYX 5.5 SYSTEM

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