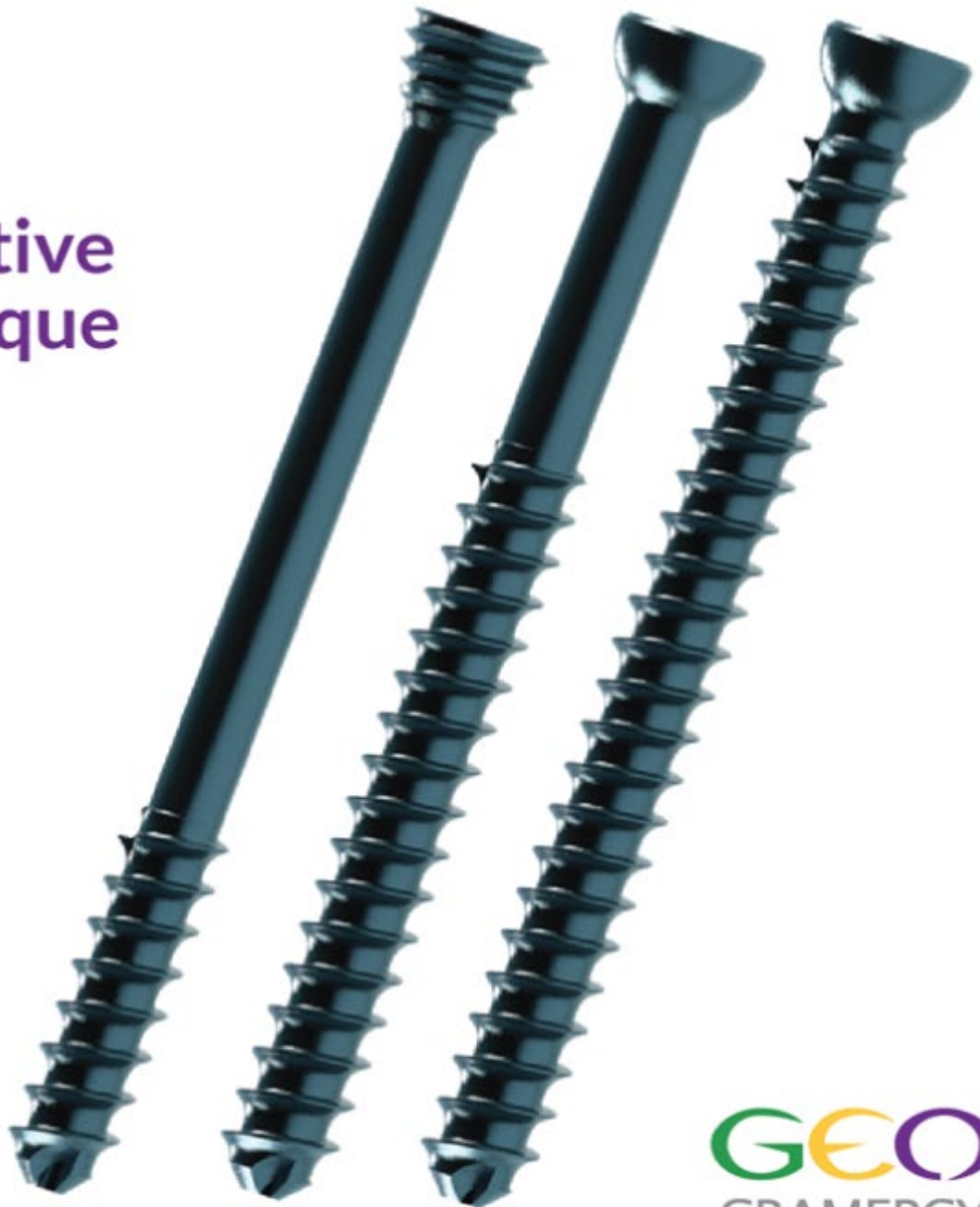


GEO[®]

GEO Bone Screws

Headed and Headless Bone Screw System

Operative Technique



GEO[®]
GRAMERCY
EXTREMITY ORTHOPEDICS

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INDICATIONS FOR USE

The GEO Bone Screw System is indicated for bone fractures, osteotomies, arthrodesis, osteochondritis, and tendon reattachment. Surgical indications include fixation of malunion and nonunion, acute fractures, repetitive stress fractures, malleolar, talus, and greater tuberosity fractures, Jones fracture, and 5th metatarsal fracture fixation and bone reconstruction where appropriate for the size of the device.

CONTRAINDICATIONS

NOT intended for attachment or fixation to the posterior elements (pedicles) of cervical, thoracic or lumbar spine; Active local infection/ any evidence of infection; Metal sensitivity or allergic reaction to foreign bodies; Poor or insufficient bone quality or quantity; Presence of any clinical or functional abnormalities that would preclude the potential of achieving a good outcome for the patient; Other conditions that may place the patient at risk physiologically; Irreparable tendon system.

WARNINGS

GEO Implants and Instrumentation are Single Use ONLY. Reuse could result in device failure; the implant can fail due to excessive load/fatigue; A successful result may not be obtained in each case. Corrective surgery may be required; Preoperative and operating procedures, surgical techniques and proper patient selection are important considerations for successful System use; Selection of the proper type and size of implant is extremely important; Use of implants for purposes other than indicated may result in breakage, injury, reoperation, removal; Patient sensitivity to implant materials; Implants are for temporary fixation until healing is complete and may not withstand weight bearing or unsupported stress.

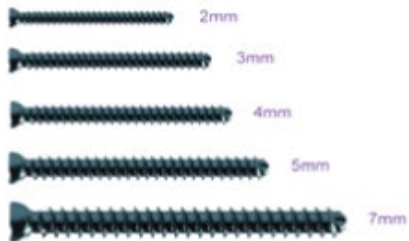
FEATURES AND BENEFITS



Headed & Headless Screws



Headed Fully Threaded Screws



Hexalobe provides additional stability and torque transfer in all screw sizes with less potential for head stripping



Countersink matched to screw sizes



Headless screw thread pitch ratio between head and shaft optimized for compression

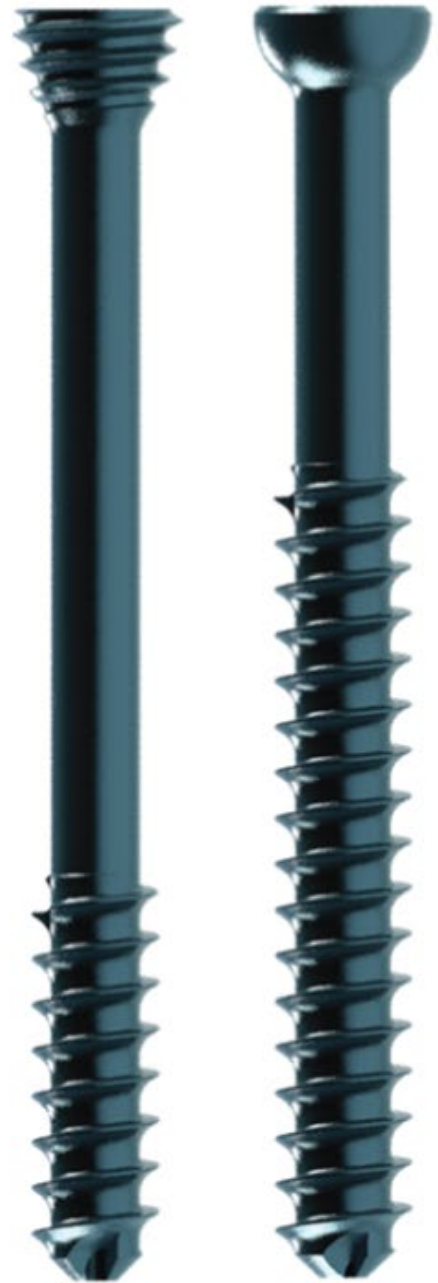
Low profile head reduces possibility of soft tissue irritation

Sterile Packaged Instruments & Implants

Reverse cutting flutes for removal

Titanium screws with Type II Blue Anodization to provide reliable strength & biocompatibility

Precision self-drilling, self-tapping tip



Choice of thread lengths offers best fit for greater inter-fragmentary compression

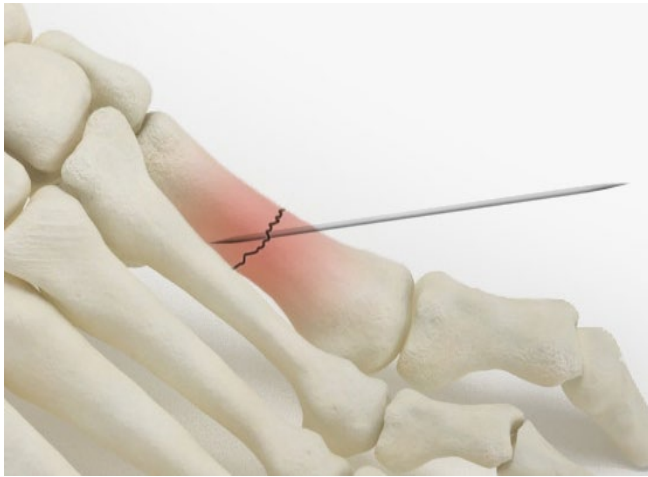
OPERATIVE TECHNIQUE

STEP 1

K-Wire Insertion

Once reduction is achieved, insert the k-wire into the bone at the preferred screw entry point. K-wires are sized for use with specific diameter GEO Bone Screws. Using a wire driver, insert the appropriate sized wire into the bone.

- 0.9mm K-wire for 2mm Screw
- 1.2mm K-wire for 3mm Screw
- 1.6mm K-wire for 4mm / 5mm Screw
- 2.5mm K-wire for 7mm / 8mm Screw



STEP 2

Measure

Choose the appropriate depth gauge according to the length of the k-wire used. If countersinking a headed screw is desired, choose the corresponding sized cannulated countersink to the screw diameter. Insert the depth gauge over the k-wire until the tip is against the bone. Read the length marking in millimeters on the depth gauge scale at the visible tip of the guide wire. Use this measure to choose the corresponding length GEO Bone Screw.



STEP 3

Drill

All GEO Bone Screws are self-drilling and self-tapping; however, drilling may be desired in certain circumstances. Using the drill bit sized for the screw diameter to be inserted, place the drill bit over the k-wire and drill the bone to the desired depth. The cannulated drill bit is used to drill the entire length of the selected screw path. Ensure the entire length is drilled to prevent distraction of distal fragments. Use of a tissue protector may also be necessary.

Select the appropriate cannulated drill bit:

- 1.6mm x 100mm for 2mm Screw
- 2.0mm x 100mm for 3mm Screw
- 2.8mm x 100mm or 150mm for 4mm / 5mm Screw
- 5.0mm x 160mm or 230mm for 7mm / 8mm Screw



STEP 4

Insert Screw

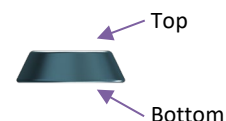
Select the appropriate GEO Bone Screw diameter, overall length and thread length. When using headed screws in areas of poor bone quality, the use of a washer to distribute the compression force of the screw head may be desired. *Place the appropriately sized washer under the head of the screw prior to insertion. Place the screw driver tip into the hexalobe socket, then place the screw over the guide wire and screw into the bone to the desired depth. If using a solid bone screw, remove the k-wire prior to insertion.

Select the appropriate cannulated screw driver tip:

- 2.0mm diameter screws – T-8 Hexalobe
- 3.0mm diameter screws – T-10 Hexalobe
- 4.0mm and 5.0mm diameter screws – T-20 Hexalobe
- 7.0mm and 8.0mm diameter screws – T-30 Hexalobe



***Note: Ensure Washer is installed in the correct orientation.**



Implants & Instruments

Ordering Information

2.0mm Diameter HeadED Screw



Screw Length	Part Number
10 mm	10002010
11 mm	10002011
12 mm	10002012
13 mm	10002013
14 mm	10002014
15 mm	10002015
16 mm	10002016
17 mm	10002017
18 mm	10002018
19 mm	10002019
20 mm	10002020
22 mm	10002022
24 mm	10002024
26 mm	10002026
28 mm	10002028
30 mm	10002030
32 mm	10002032
34 mm	10002034
36 mm	10002036
38 mm	10002038
40 mm	10002040
45 mm	10002045
50 mm	10002050

2.0mm Diameter HeadED Screw Full Thread



Screw Length	Part Number
10 mm	10402010
11 mm	10402011
12 mm	10402012
13 mm	10402013
14 mm	10402014
15 mm	10402015
16 mm	10402016
17 mm	10402017
18 mm	10402018
19 mm	10402019
20 mm	10402020
22 mm	10402022
24 mm	10402024
26 mm	10402026
28 mm	10402028
30 mm	10402030
32 mm	10402032
34 mm	10402034
36 mm	10402036
38 mm	10402038
40 mm	10402040
45 mm	10402045
50 mm	10402050

2.0mm Diameter HeadLESS Screw



Screw Length	Part Number
10 mm	10202010
11 mm	10202011
12 mm	10202012
13 mm	10202013
14 mm	10202014
15 mm	10202015
16 mm	10202016
17 mm	10202017
18 mm	10202018
19 mm	10202019
20 mm	10202020
22 mm	10202022
24 mm	10202024
26 mm	10202026
28 mm	10202028
30 mm	10202030
32 mm	10202032
34 mm	10202034
36 mm	10202036
38 mm	10202038
40 mm	10202040
45 mm	10202045
50 mm	10202050

**3.0mm Diameter HeadED Screw
Short Thread**



Screw Length	Part Number
10 mm	10003010
12 mm	10003012
14 mm	10003014
16 mm	10003016
18 mm	10003018
20 mm	10003020
22 mm	10003022
24 mm	10003024
26 mm	10003026
28 mm	10003028
30 mm	10003030
32 mm	10003032
34 mm	10003034
36 mm	10003036
38 mm	10003038
40 mm	10003040
45 mm	10003045
50 mm	10003050

**3.0mm Diameter HeadED Screw
Full Thread**



Screw Length	Part Number
10 mm	10403010
12 mm	10403012
14 mm	10403014
16 mm	10403016
18 mm	10403018
20 mm	10403020
22 mm	10403022
24 mm	10403024
26 mm	10403026
28 mm	10403028
30 mm	10403030
32 mm	10403032
34 mm	10403034
36 mm	10403036
38 mm	10403038
40 mm	10403040
45 mm	10403045
50 mm	10403050

**3.0mm Diameter HeadLESS Screw
Short Thread**



Screw Length	Part Number
10 mm	10203010
12 mm	10203012
14 mm	10203014
16 mm	10203016
18 mm	10203018
20 mm	10203020
22 mm	10203022
24 mm	10203024
26 mm	10203026
28 mm	10203028
30 mm	10203030
32 mm	10203032
34 mm	10203034
36 mm	10203036
38 mm	10203038
40 mm	10203040
42 mm	10203042
44 mm	10203044
45 mm	10203045
50 mm	10203050

**3.0mm Diameter HeadED Screw
Long Thread**



Screw Length	Part Number
26 mm	10103026
28 mm	10103028
30 mm	10103030
32 mm	10103032
34 mm	10103034
36 mm	10103036
38 mm	10103038
40 mm	10103040
45 mm	10103045
50 mm	10103050

**3.0mm Diameter HeadLESS Screw
Long Thread**



Screw Length	Part Number
24 mm	10303024
26 mm	10303026
28 mm	10303028
30 mm	10303030
32 mm	10303032
34 mm	10303034
36 mm	10303036
38 mm	10303038
40 mm	10303040
42 mm	10303042
44 mm	10303044
45 mm	10303045
50 mm	10303050

**4.0mm Diameter HeadED Screw
Short Thread**



Screw Length	Part Number
16 mm	10004016
18 mm	10004018
20 mm	10004020
22 mm	10004022
24 mm	10004024
26 mm	10004026
28 mm	10004028
30 mm	10004030
32 mm	10004032
34 mm	10004034
36 mm	10004036
38 mm	10004038
40 mm	10004040
42 mm	10004042
44 mm	10004044
46 mm	10004046
48 mm	10004048
50 mm	10004050
55 mm	10004055
60 mm	10004060

**4.0mm Diameter HeadED Screw
Full Thread**



Screw Length	Part Number
16 mm	10404016
18 mm	10404018
20 mm	10404020
22 mm	10404022
24 mm	10404024
26 mm	10404026
28 mm	10404028
30 mm	10404030
32 mm	10404032
34 mm	10404034
36 mm	10404036
38 mm	10404038
40 mm	10404040
42 mm	10404042
44 mm	10404044
46 mm	10404046
48 mm	10404048
50 mm	10404050
55 mm	10404055
60 mm	10404060

**4.0mm Diameter HeadLESS Screw
Short Thread**



Screw Length	Part Number
16 mm	10204016
18 mm	10204018
20 mm	10204020
22 mm	10204022
24 mm	10204024
26 mm	10204026
28 mm	10204028
30 mm	10204030
32 mm	10204032
34 mm	10204034
36 mm	10204036
38 mm	10204038
40 mm	10204040
42 mm	10204042
44 mm	10204044
46 mm	10204046
48 mm	10204048
50 mm	10204050
55 mm	10204055
60 mm	10204060

**4.0mm Diameter HeadED Screw
Long Thread**



Screw Length	Part Number
40 mm	10104040
42 mm	10104042
44 mm	10104044
46 mm	10104046
48 mm	10104048
50 mm	10104050
55 mm	10104055
60 mm	10104060

**4.0mm Diameter HeadLESS Screw
Long Thread**



Screw Length	Part Number
40 mm	10304040
42 mm	10304042
44 mm	10304044
46 mm	10304046
48 mm	10304048
50 mm	10304050
55 mm	10304055
60 mm	10304060

**5.0mm Diameter HeadED Screw
Short Thread**



Screw Length	Part Number
40 mm	10005040
45 mm	10005045
50 mm	10005050
52.5 mm	10005052
55 mm	10005055
57.5 mm	10005057
60 mm	10005060
62.5 mm	10005062
65 mm	10005065
67.5 mm	10005067
70 mm	10005070
72.5 mm	10005072
75 mm	10005075
77.5 mm	10005077
80 mm	10005080
85 mm	10005085
90 mm	10005090
95 mm	10005095
100 mm	10005100

**5.0mm Diameter HeadED Screw
Full Thread**



Screw Length	Part Number
40 mm	10405040
45 mm	10405045
50 mm	10405050
52.5 mm	10405052
55 mm	10405055
57.5 mm	10405057
60 mm	10405060
62.5 mm	10405062
65 mm	10405065
67.5 mm	10405067
70 mm	10405070
72.5 mm	10405072
75 mm	10405075
77.5 mm	10405077
80 mm	10405080
85 mm	10405085
90 mm	10405090
95 mm	10405095
100 mm	10405100

**5.0mm Diameter HeadLESS Screw
Short Thread**



Screw Length	Part Number
40 mm	10205040
45 mm	10205045
50 mm	10205050
52.5 mm	10205052
55 mm	10205055
57.5 mm	10205057
60 mm	10205060
62.5 mm	10205062
65 mm	10205065
67.5 mm	10205067
70 mm	10205070
72.5 mm	10205072
75 mm	10205075
77.5 mm	10205077
80 mm	10205080
85 mm	10205085
90 mm	10205090
95 mm	10205095
100 mm	10205100

**5.0mm Diameter HeadED Screw
Long Thread**



Screw Length	Part Number
60 mm	10105060
62.5 mm	10105062
65 mm	10105065
67.5 mm	10105067
70 mm	10105070
72.5 mm	10105072
75 mm	10105075
77.5 mm	10105077
80 mm	10105080
85 mm	10105085
90 mm	10105090
95 mm	10105095
100 mm	10105100

**5.0mm Diameter HeadLESS Screw
Long Thread**



Screw Length	Part Number
60 mm	10305060
62.5 mm	10305062
65 mm	10305065
67.5 mm	10305067
70 mm	10305070
72.5 mm	10305072
75 mm	10305075
77.5 mm	10305077
80 mm	10305080
85 mm	10305085
90 mm	10305090
95 mm	10305095
100 mm	10305100

**7.0mm Diameter HeadED Screw
Short Thread**



Screw Length	Part Number
40 mm	10007040
45 mm	10007045
50 mm	10007050
52.5 mm	10007052
55 mm	10007055
57.5 mm	10007057
60 mm	10007060
62.5 mm	10007062
65 mm	10007065
67.5 mm	10007067
70 mm	10007070
72.5 mm	10007072
75 mm	10007075
77.5 mm	10007077
80 mm	10007080
85 mm	10007085
90 mm	10007090
95 mm	10007095
100 mm	10007100
105 mm	10007105
110 mm	10007110
115 mm	10007115
120 mm	10007120

**7.0mm Diameter HeadED Screw
Full Thread**



Screw Length	Part Number
40 mm	10407040
45 mm	10407045
50 mm	10407050
52.5 mm	10407052
55 mm	10407055
57.5 mm	10407057
60 mm	10407060
62.5 mm	10407062
65 mm	10407065
67.5 mm	10407067
70 mm	10407070
72.5 mm	10407072
75 mm	10407075
77.5 mm	10407077
80 mm	10407080
85 mm	10407085
90 mm	10407090
95 mm	10407095
100 mm	10407100
105 mm	10407105
110 mm	10407110
115 mm	10407115
120 mm	10407120

**7.0mm Diameter HeadLESS Screw
Short Thread**



Screw Length	Part Number
40 mm	10207040
45 mm	10207045
50 mm	10207050
52.5 mm	10207052
55 mm	10207055
57.5 mm	10207057
60 mm	10207060
62.5 mm	10207062
65 mm	10207065
67.5 mm	10207067
70 mm	10207070
72.5 mm	10207072
75 mm	10207075
77.5 mm	10207077
80 mm	10207080
85 mm	10207085
90 mm	10207090
95 mm	10207095
100 mm	10207100
105 mm	10207105
110 mm	10207110
115 mm	10207115
120 mm	10207120

**7.0mm Diameter HeadED Screw
Long Thread**



Screw Length	Part Number
60 mm	10107060
62.5 mm	10107062
65 mm	10107065
67.5 mm	10107067
70 mm	10107070
72.5 mm	10107072
75 mm	10107075
77.5 mm	10107077
80 mm	10107080
85 mm	10107085
90 mm	10107090
95 mm	10107095
100 mm	10107100
105 mm	10107105
110 mm	10107110
115 mm	10107115
120 mm	10107120

**7.0mm Diameter HeadLESS Screw
Long Thread**



Screw Length	Part Number
60 mm	10307060
62.5 mm	10307062
65 mm	10307065
67.5 mm	10307067
70 mm	10307070
72.5 mm	10307072
75 mm	10307075
77.5 mm	10307077
80 mm	10307080
85 mm	10307085
90 mm	10307090
95 mm	10307095
100 mm	10307100
105 mm	10307105
110 mm	10307110
115 mm	10307115
120 mm	10307120

**8.0mm Diameter HeadED Screw
Short Thread**



Screw Length	Part Number
50 mm	10008050
52.5 mm	10008052
55 mm	10008055
57.5 mm	10008057
60 mm	10008060
62.5 mm	10008062
65 mm	10008065
67.5 mm	10008067
70 mm	10008070
72.5 mm	10008072
75 mm	10008075
77.5 mm	10008077
80 mm	10008080
85 mm	10008085
90 mm	10008090
95 mm	10008095
100 mm	10008100
105 mm	10008105
110 mm	10008110
115 mm	10008115
120 mm	10008120

**8.0mm Diameter HeadLESS Screw
Short Thread**



Screw Length	Part Number
50 mm	10208050
52.5 mm	10208052
55 mm	10208055
57.5 mm	10208057
60 mm	10208060
62.5 mm	10208062
65 mm	10208065
67.5 mm	10208067
70 mm	10208070
72.5 mm	10208072
75 mm	10208075
77.5 mm	10208077
80 mm	10208080
85 mm	10208085
90 mm	10208090
95 mm	10208095
100 mm	10208100
105 mm	10208105
110 mm	10208110
115 mm	10208115
120 mm	10208120

**8.0mm Diameter HeadED Screw
Long Thread**




Screw Length	Part Number
80 mm	10108080
85 mm	10108085
90 mm	10108090
95 mm	10108095
100 mm	10108100
105 mm	10108105
110 mm	10108110
115 mm	10108115
120 mm	10108120

**8.0mm Diameter HeadLESS Screw
Long Thread**



Screw Length	Part Number
80 mm	10308080
85 mm	10308085
90 mm	10308090
95 mm	10308095
100 mm	10308100
105 mm	10308105
110 mm	10308110
115 mm	10308115
120 mm	10308120

K-Wires



For use with:	Wire Diameter	Part Number	Tip Type	Wire Length
2mm Screw	0.9	13009100	Single Trocar Smooth	100
2mm Screw	0.9	13109100	Double Trocar Smooth	100
3mm Screw	1.2	13012100	Single Trocar Smooth	100
4mm/5mm Screw	1.6	13016100	Single Trocar Smooth	100
4mm/5mm Screw	1.6	13016150	Single Trocar Smooth	150
4mm/5mm Screw	1.6	13216100	Single Trocar Threaded	100
4mm/5mm Screw	1.6	13216150	Single Trocar Threaded	150
7mm/8mm Screw	2.5	13025150	Single Trocar Smooth	150
7mm/8mm Screw	2.5	13025230	Single Trocar Smooth	230
7mm/8mm Screw	2.5	13225150	Single Trocar Threaded	150
7mm/8mm Screw	2.5	13225230	Single Trocar Threaded	230

Washers



For use with:	Part Number
2mm Screw	28000002
3mm Screw	28000003
4mm Screw	28000004
5mm Screw	28000005
7mm Screw	28000007
8mm Screw	28000008

Drill Bit – Cannulated



Description	Part Number
1.6mm x 100mm for 2.0mm Screw	21016100
2.0mm x 100mm for 3.0mm Screw	21020100
2.8mm x 100mm for 4.0mm / 5.0mm Screw	21028100
2.8mm x 150mm for 4.0mm / 5.0mm Screw	21028150
5.0mm x 160mm for 7.0mm / 8.0mm Screw	21250160
5.0mm x 230mm for 7.0mm / 8.0mm Screw	21250230

Hexalobe Driver Tip - Cannulated



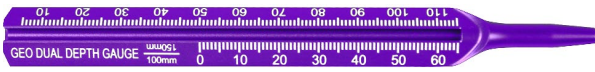
Description	Part Number
T-8, AO connector	20009908
T-10, AO connector	20009910
T-20, AO connector	20009920
T-30, Hudson connector	20109930

Countersink - Cannulated



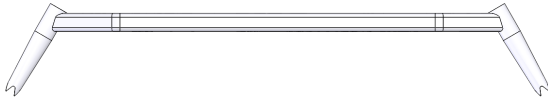
Description	Part Number
2mm / 3mm Screw, AO connector	23000041
4mm / 5mm Screw, AO connector	23000066
7mm / 8mm Screw, Hudson connector	23100091

Depth Gauge



Description	Part Number
100mm / 150mm Guide Wire	27010150
100mm Guide Wire	27000100
230mm Guide Wire	27000230

Tissue Protector



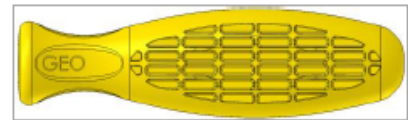
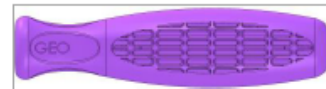
Description	Part Number
1.6mm / 2.0mm Tissue Protector	22111620
2.8mm / 5.0mm Tissue Protector	22112850

Countersink - Cannulated

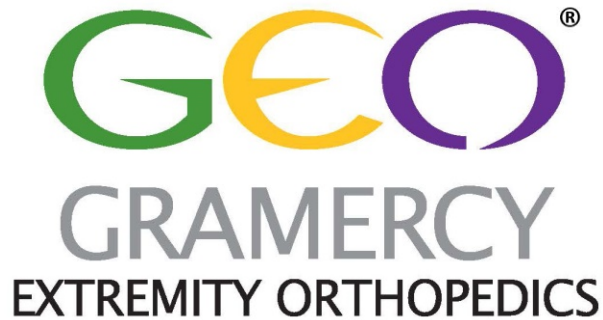


Description	Part Number
2mm Screw, AO connector	23000024
3mm Screw, AO connector	23000036
4mm Screw, AO connector	23000051
5mm Screw, AO connector	23000061
7mm Screw, Hudson connector	23100081
8mm Screw, Hudson connector	23100086

AO & Hudson handle – Cannulated



Description	Part Number
AO Handle	20060000
Hudson Handle	20160000



Disclaimer

The following guidelines are provided by GEO for information purposes only. Proper surgical procedures and techniques are the responsibility of the medical professional. Each surgeon must evaluate the appropriateness of the procedures based on his or her personal medical training and experience.

Prior to use of the system, the surgeon should refer to the product Instructions for Use for complete warnings, precautions, indications, contraindications and adverse effects. Instructions for Use package inserts are available at www.gramercyortho.com and by contacting Gramercy Extremity Orthopedics, LLC.

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Richardson, TX 75081
GEO Support Center: (855) GEO-CART
(855) 436-2278

www.gramercyortho.com

Caution: Federal Law restricts this device to sale by or on the order of a physician.
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