DELTA PRIMARY

ACETABULAR CUP SYSTEM

SURGICAL TECHNIQUE FAST REAMERS

Lima Corporate
Orthopaedic motion

DELTA PRIMARY SURGICAL TECHNIQUE

Index

Limacorporate spa, as manufacturer of prosthesis device, does not practice medicine. This surgical technique brochure has been developed in consultation with an experienced surgeon team and provides the surgeon with general guidance when implanting DELTA PRIMARY SYSTEM. Proper surgical procedures and techniques are necessarily the responsibility of the medical professional. Each surgeon must evaluate the appropriateness of the surgical technique used based on personal medical training, experience and clinical evaluation of each individual patient. For further information about our products, please visit our web site at ***www.limacorporate.com***

LEONARDO DA VINCI: THE VITRUVIAN MAN. STUDIES OF HUMAN PROPORTIONS (1490)

DELTA PRIMARY ACETABULAR CUP SYSTEM

The DELTA System was designed in 1999 to offer a comprehensive range of complete, versatile acetabular cups, minimise the risk of dislocation through the use of large diameters, and optimise the mechanical performance of joint components.

DELTA-TT

The DELTA-TT cup breaks new ground in orthopaedic technology, combining the unique features of the DELTA System with the Trabecular Titanium structure.
The hemispheric, Titanium alloy (Ti6Al4V), design is indicated for uncemented implants, and the diameter is oversized to achieve press-fit. The mechanical interlocking between the cup and the acetabulum, enhanced by the high mechanical friction produced by the Trabecular Titanium structure, helps achieving primary fixation followed by secondary integration.

DELTA-PF

The DELTA-PF cup is the current gold standard for primary PoroTi + HA coated Titanium alloy (Ti6Al4V) cups. It features equatorial retaining grooves which further primary stability and, the diameter of the cup is oversized to ensure a good press-fit in the acetabular bone preparation.

DELTA-FINS

The DELTA-FINS cup is made out of Titanium alloy (Ti6Al4V) and features a series of longitudinal equatorial fins; the fins penetrate into the bone tissue, enhancing torsional stability and achieving optimal primary mechanical fixation.
The DELTA-FINS cup is designed to fit acetabular sockets which may feature surgically adequate morphologies but require special care, such in case of dysplasia and certain revision cases.

DELTA PRIMARY SURGICAL TECHNIQUE
Indications and Contraindications

Consult instruction for use provided in the product package

INDICATIONS

The DELTA System is indicated for use in total hip arthroplasty for reduction or relief of pain and/or improved hip function in skeletally mature patients with the following conditions:

- non-inflammatory degenerative joint disease such as osteoarthritis, avascular necrosis and hip dysplasia;
- rheumatoid arthritis;
- post-traumatic arthritis,
- correction of functional deformity;
- fractures, dislocation of the hip and unsuccessful cup arthroplasty;
- revisions in cases of good remaining bone stock.

DELTA Fins is indicated also in cases of hip dysplasia.

The DELTA system is intended for cementless use.

CONTRAINDICATIONS

Absolute contraindications include:

- local or systemic infection;
- septicaemia;
- persistent acute or chronic osteomyelitis;
- confirmed nerve or muscle lesion compromising hip joint function.

Relative contraindications include:

- vascular or nerve diseases affecting the concerned limb;
- poor bone stock (for example due to osteoporosis) compromising the stability of the implant;
- metabolic disorders which may impair fixation and stability of the implant;
- any concomitant disease and dependence that might affect the implanted prosthesis;
- metal hypersensitivity to implant materials.

RISK FACTORS

The following risk factors may result in poor results with this prosthesis:

- overweight;
- strenuous physical activities (active sports, heavy physical work);
- incorrect implant positioning;
- medical disabilities which can lead to an unnatural gait and loading of the hip joint;
- muscle deficiencies;
- multiple joint disabilities;
- refusal to modify postoperative physical activities;
- patient's history of infections or falls;
- systemic diseases and metabolic disorders;
- local or disseminated neoplastic diseases;
- drug use or alcoholism;
- marked osteoporosis or osteomalacia;
- patient's resistance generally weakened (HIV, tumour, infections);
- severe deformity leading to impaired anchorage or improper positioning of implants.

WARNINGS

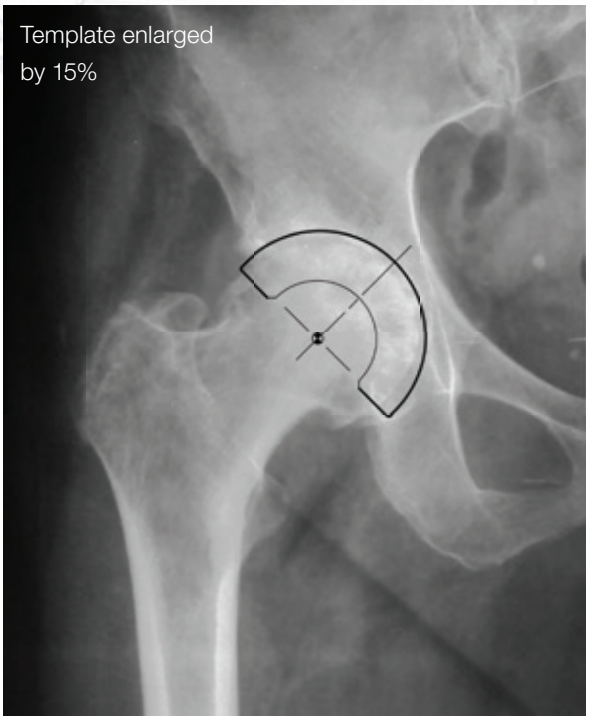
PRE-OPERATIVE PLANNING

Lima Corporate products should be implanted only by surgeons familiar with the joint replacement procedures described in the specific surgical techniques.

COMBINATIONS ALLOWED/NOT ALLOWED

- DELTA PF cups diameters 50 and 52 mm for liners size Large are not suitable for BIOLOX® DELTA liners;
- All angled spacers are not suitable for DELTA-TT, PF, FINS;
- BIOLOX® DELTA liners can be coupled only with BIOLOX® Forte or BIOLOX® DELTA femoral heads;
- Bone screws can be used with the DELTA cups.
- Double mobility with 40 mm ceramic liner (2M CER) is allowed only with primary implants acetabular cups (DELTA-PF and TT)

Pre-operative planning



AP X-RAY with DELTA-TT Template

PRE-OPERATIVE PLANNING

IMPORTANT: *Pre-operative planning provides useful information for the correct placement of the implant but does not necessarily indicate the appropriate cup size. The correct cup size must be determined during surgery.*

To achieve the best results, pre-operative planning using special templates (with 15% magnification) is always advisable.
AP radiograph with adequate contrast should be used.
The templates show both the profile of the cup and the centre of rotation of the femoral head.
Instead of conventional templates, a digital version compatible with most surgical planning software is also available.

ACETABULAR REAMING

Using the desired surgical approach, expose the acetabulum so as to view it adequately for reaming.
Remove possible osteophytes and expose the cotyloid rim thus obtaining an unobstructed view of the bone anatomy to verify presence of possible cavitary and/or segmental defects. The acetabular seat is prepared with the "Fast" acetabular reamers.

Initially start reaming the acetabulum with the "Fast" reamers *(Fig. 1)*, preferably with a reamer 4-6 mm smaller than the size determined by pre-operative templating, mounted on the apposite handle, to deepen the acetabulum as templated.

"FAST" Acetabular reamer
cod. 9055.28.942

Figure 1

Reamer Handle Zimmer-Hall connection
cod. 9055.28.814

Figure 2

Engaging the reamer with the handle *(Fig. 2)*:

1. Insert the reamer into the handle-reamer connecting area *(Fig.3)*;
2. the reamer then automatically connects to the handle thanks to the magnetic locking mechanism;
3. turn the reamer clockwise to finalize the locking of the two elements *(Fig. 4)*.

Figure 3

Figure 4

Figure 5

Figure 6

Multi Purpose Handle
cod. 9055.28.400

Impactor - Positioner - Aligner
cod. 9057.20.555

Figure 7

Figure 8

Insert the reamer into the acetabulum by keeping it on an abduction axis of approximately 45° *(Fig. 5)* and an anteversion of 15°; operate the attached manipulator clockwise.

To remove the reamer, turn it counter-clockwise and then pull it to disengage the magnet.

Proceed gradually with incremental diameter reamers until reaching the subchondral bone.

Note:

For DELTA-PF and DELTA-FINS:
Reaming should proceed in 2 mm increments.
Once the desired ream has been achieved, select the implant with nominal diameter corresponding to the final even reamer used.
The implant's nominal diameter includes the interference fit as follows:

- *DELTA-PF 1.7 mm*
- *DELTA-FINS 1 mm (+ 2.5 mm FINS)*

For DELTA-TT:
Reaming should proceed in 2 mm increments.
Once the desired ream has been achieved, select the implant with nominal diameter corresponding to the final even reamer used.
The implant's nominal diameter includes the interference fit of about 1 mm.
In cases where less interference fit is needed, the 1 mm incrementing reamers (odd sized) can be used. ***Select the implant with nominal diameter corresponding to the last even reamer.***

TRIAL AND ACETABULAR CUP INTRODUCTION

Once the acetabular seat preparation has been completed, use the cup trial *(Fig. 6)* of the size corresponding to the last reamer employed, to assess the amount of interference and cup orientation. Screw the trial cup onto the positioner or onto the multipurpose handle *(Fig. 7).*

Collimation Bars

Wrench for Cup DELTA-PF
cod. 9055.51.015

Figure 9

Adapter for Cups Wrench
cod. 9055.51.110

Figure 10

Figure 11

Figure 12

Place the cup trial in an anatomic orientation and check its contact with the acetabular wall through the cutouts *(Fig. 8).*

The definitive implant choice (PF, FINS, or TT) follows the pathology of the patient and the experience of the surgeon.

At this point, the definitive cup having the same nominal diameter as that of the cup trial used, is impacted in the acetabulum.

The wrench *(Fig. 9)* is equipped with three modular adaptors, sizes S, M, L (like acetabular liners), which optimize the impact stress distribution on the cup during impaction *(Fig. 10)*.

Choose the adaptor size according to the cup size (size is marked onto the packaging label as well as inside the cup) and assemble to the end of the wrench *(Fig. 11)*.
The adaptor is automatically clamped.

Place the cup on the end of the wrench *(Fig. 12)*, aligning the cup's internal polar grooves to the corresponding handle's pegs.
During the attachment, the two pegs should lodge into the cup's polar site grooves, hearing a slight snapping sound. The rim of the cup must be in complete contact with the adaptor periphery.

Figure 13

The opposite end of the handle also shows correct alignment *(Fig. 13-14)*.

Securely tighten the cup *(Fig. 15)*.

Warning! *Intra-operative handling of TT cups: when the cup is removed from its packaging, in the operation theatre, it should not come in contact with any particle releasing materials (e.g. gauze/sponges). Due to the highly gripping Trabecular Titanium structure, it can easily remove particles from the material it has been touching, which can lead to inflammatory reactions and infections in the patient.*

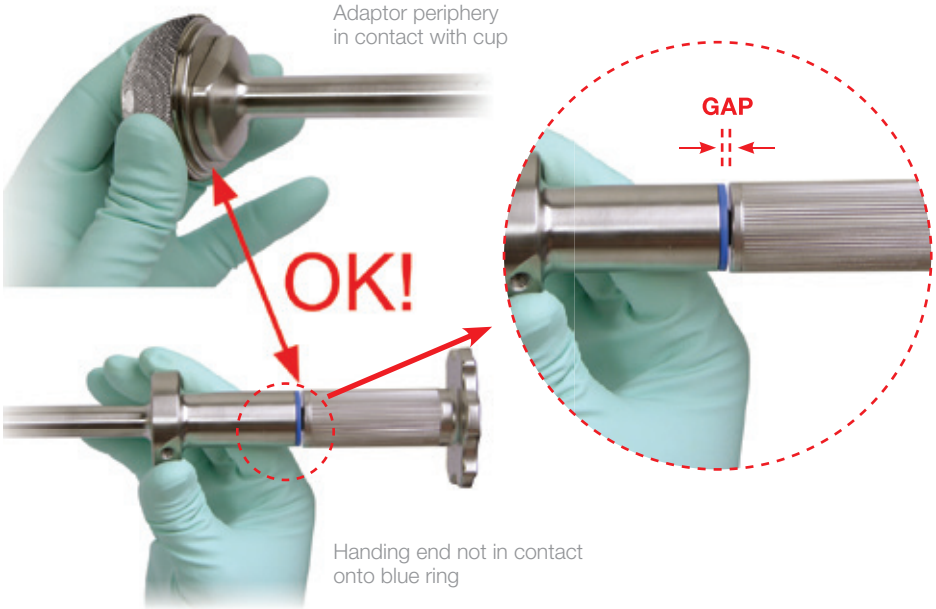


Figure 14

Figure 15

Figure 16

The profile at the bottom of the cup achieves a strong lock with the wrench which reduces the risk of accidental disengagement during introduction and impaction *(Fig.16)*. Moreover the adaptor facilitates cup refastening.

Place the cup in the acetabulum with an angle of abduction of about 45° *(Fig. 17).*

Warning! *If a ceramic liner is used it is essential for the safety of the device that the covering angle of the cup does not exceed 45° (an angle of 40° is better) and that the angle of ante version is between 10° and 20° (Fig. 18).*

Figure 17

A mistake in positioning could cause damage of the ceramic liner if sub-dislocation of the femoral head occurs. This is also why it is extremely important to check the correct anteversion of the femoral stem.

If bone screws are used, position the cup so that the screw holes are in the superolateral area. The instrumentation set support specific tools to control the positioning of the acetabular cup, no matter what the position of patient and the surgical approach are used.

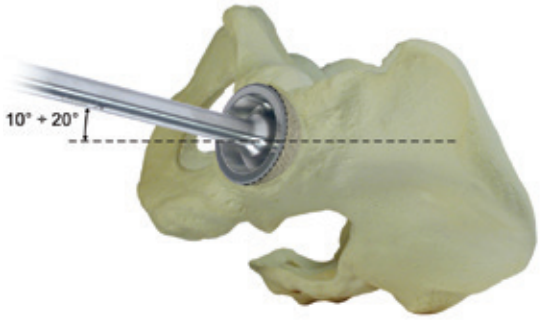


Figure 18

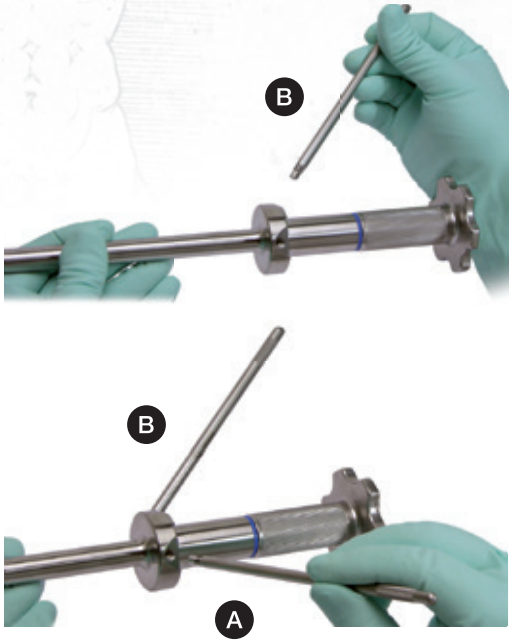


Figure 19

Insert the collimation bars in their threaded holes *(Fig. 19)* on the shaft of the wrench.

For instance if the patient lies on lateral decubitus, it is possible to check that if the first bar *(Fig. 20a)* is horizontal and the second *(Fig. 20b)* is perpendicular to the surgical bed, the cup is in 45° abduction and 15° anteversion.

Hold the wrench steady and hit along the axis with a hammer, impacting the cup firmly into the bony socket. Check that the cup is sunk into the acetabulum sufficiently and that the implant is initially stable by moderately levering the wrench shaft in various planes.

Disengage the wrench by unscrewing the knob and check the contact between the cup and the acetabulum through the polar and cranial holes (removes one or more plugs). If necessary refasten the wrench and repeat the axial hammer impaction.

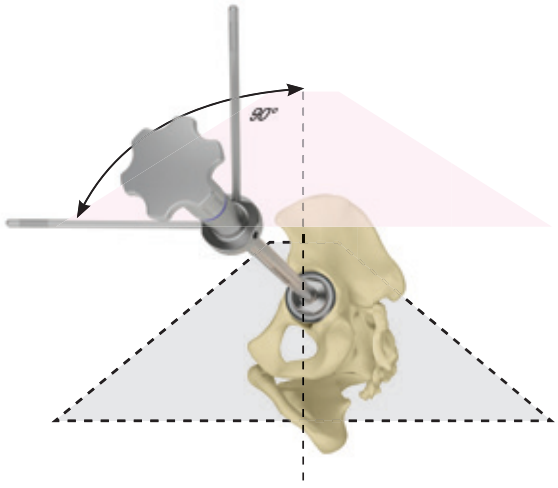


Figure 20a

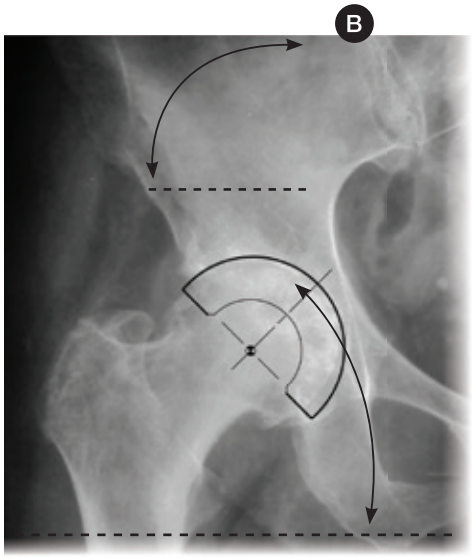


Figure 20b

A = 15°
B = 45°
- - - - - - - - - = Table level

Figure 21

Figure 22

Figure 23

Figure 24

Drill Guide
cod. 9084.20.150
Figure 25

Figure 26

If the primary stability of the cup is judged to be insufficient, independent of the use of further bone screws, further milling of the acetabular site is recommended, using a reamer of larger diameter and thus its corresponding cup.

If required, bone screws can then be used (the holes of cup must be in the supero-lateral position). Using one of the screwdrivers *(Fig. 21)*, remove one or more of the threaded plugs as appropriate *(Fig. 22)*.

INTRODUCTION OF THE BONE SCREWS

We recommend that you use exclusively the bone screws supplied with the system *(Fig. 23)*.
Other screws could create problems with correct articular liner insertion.

Introduce the drill *(Fig. 24)* with a flexible drill shaft into the drill guide *(Figs. 25-26)*.

One drill shaft and two helix drills are available, one short (30 mm) and one long (50 mm) *(Fig. 24)*.

Place the drill guide in the selected hole of the cup, respecting the direction of the hole and then drill the bony tissue *(Fig. 26)*.

Screw holding forceps
cod. 9095.10.115

Figure 27

Figure 28

Figure 29

Grasp the bone screw with the holding forceps *(Fig. 27)* below the spherical head and start screwing into the bone using the universal or cardanic screwdriver *(Fig. 28)*.

As soon as the screw starts entering the bone, remove the pliers and complete the screwing *(Fig. 29)*.

Note. *The head of the screw must not protrude from the interior of the acetabular cup; if it does it might prevent the articular liner from coupling correctly.*

If necessary repeat this procedure for the other holes. No more than three screws can be used.

TRIAL REDUCTION

Normally the acetabular procedure precedes the femoral one, so that once the acetabular component has been inserted it is recommended that all contact between the acetabular cup and femoral stem is avoided. In order to facilitate this, it is suggested that you insert a trial liner into the cup (this can also be used for trial reduction of the hip replacement) or a protection tampon.
The use of liner trials *(Fig. 30)* is advised to check joint movement. The DELTA cups instrument set provides head trials with low taper *(Fig. 31)*, diameters 32, 36 and 40 mm, for trial reduction *(Figs. 32-33)*.

Trial Liner
cod. 9055.50.020...

Figure 30

Trial Head Low Taper
cod. 9095.10.721...

Figure 31

Figure 32

If the cup is poorly positioned in relation to the femoral component, avoid using ceramic liners due to risk of impingement or dislocation.
Instead you may choose a protruded polyethylene liner. Mark the bone where dislocation may happen, this will aid the insertion of the protruded polyethylene liner.

INSERTION OF THE DEFINITIVE ARTICULAR LINER

Before inserting the definitive articular liner (whose correct size is printed on the packaging and inside the acetabular cup) clean the interior of the cup carefully and check that soft tissues will not interfere with definitive liner insertion.

All the liners of DELTA System *(Fig. 34)* are fixed by a conical coupling. This does not require either snap devices or antirotation pegs on the external edge of the cup. Furthermore, with the aid of the polar peg, the liner insertion maneuver is driven with reduced risk of cup malpositioning and/or misalignment.

Figure 33

Figure 34

Note. The metal liner is available only with double mobility system.

Figure 35

Figure 36

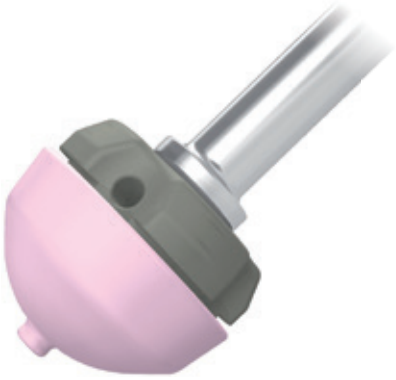


Figure 37

USE OF THE CERAMIC LINER

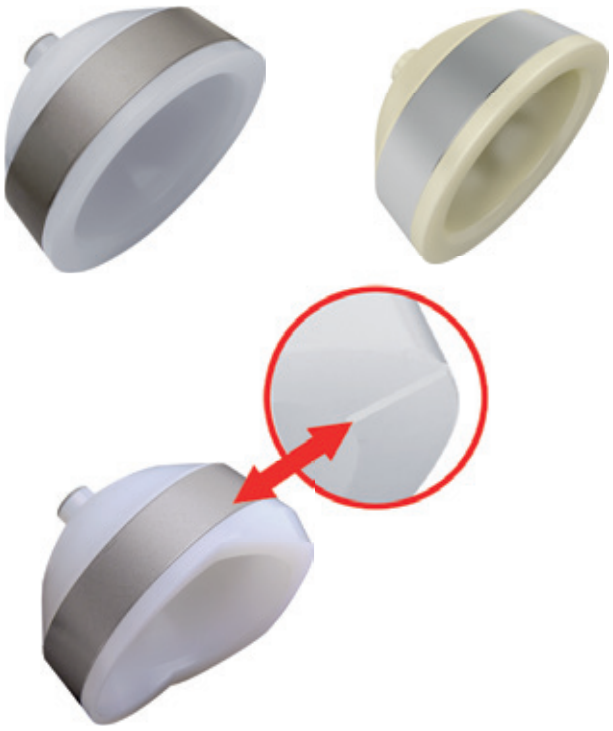
Impaction of the ceramic liner *(Fig. 35)*: fix the ceramic liner positioner (i.e. code 9058.85.090) to the liner positioner (i.e. MEDIUM-LARGE 9058.85.220).
Screw the liner positioner to the multipurpose handle *(Fig. 36)*.

Place the ceramic liner on the ceramic liner positioner *(Fig. 37)*.

Impact the liner in the cup *(Fig. 38)*. Remove the handle by pulling it and by disengaging the positioner from the ceramic liner.
Make sure that the liner has been lodged correctly inside the cup by feeling the perimeter. The border of the liner must not protrude out from the rim of the cup, the liner could break if it is in the wrong position.

Warning!
For Revision Cases:
Removal of the ceramic liner is achieved by striking the metal rim of the cup with a flat tipped impactor. The vibrations will shake the liner out of its housing.
Never re-engage the removed ceramic liner, or a new ceramic liner in a housing that has already been occupied by a ceramic liner beforehand. Complete the implant by using a polyethylene liner only.

Figure 38



UHMWPE Liners

Figure 39

USE OF THE POLYETHYLENE LINER

X-Lima and LimaVit™ polyethylene liners *(Fig. 39)* can be inserted by hand. Hold the liner between thumb and forefinger, having the latter in the concave part of the liner. Insert the liner into the cup by pushing and slightly rotating it to achieve correct locking. Check for correct liner lodging.

Note. *For lipped liners check the position of the antiluxation rim before locking the liner definitively in site.*

Liner Impactor
cod. 9057.20.300...

Figure 40

Multi Purpose Handle
cod. 9055.28.400

Impactor - Positioner - Aligner
cod. 9057.20.555

Figure 41

Figure 42

Figure 43

To ensure the coupling stability, screw the liner impactor *(Fig. 40)* onto the impactor *(Figs. 41-42)* and tap the liner in an axial direction *(Fig. 43)*.

The bearing load will definitely lock the coupling.

At the end clean and wipe the coupling surfaces carefully before definitively reducing the joint.

Note. *The removal of the polyethylene liner can be achieved by screwing a self-tapping bone screw in the bottom.*

Figure 44

DOUBLE MOBILITY

It is also possible to fit a large diameter polyethylene mobile liner in the same cup so that it articulates with an internal head of 28 or 22 mm.

TRIAL COMPONENT FOR DOUBLE MOBILITY

The trial liner (cod. 9055.66.400 or cod. 9058.85.042) is placed inside the cup.
Insert the diameter 28 head trial and the mobile trial liner onto the cone of the stem *(Fig. 44)*. Proceed with trial reduction to determine the correct head length.

Figure 45

FINAL IMPLANT WITH DOUBLE MOBILITY

Insert the final liner:
- for ceramic refer to page 20
- for metal follow the same steps as with PE, page 21

The PE mobile liner, matching the impacted ceramic or metal liner, is seized with the femoral head using the press. Place the PE mobile liner on the supporting plastic as well as the femoral head is positioned on the mobile liner's opening. The T-Handle is then turned until the head is fully locked inside the mobile liner *(Fig. 45)*.

Insert the components on the taper of the stem and perform the final reduction of the implant *(Fig. 46)*.

Figure 46

Note. *Mobile liners are suited for unskirted heads only.*
Note. *Only S, M and L Heads can be used in the Double Mobility System with the exception of BIOLOX® DELTA REVISION XL Heads.*
Note. *The removal of the metallic liner must be executed with the same modalities of the ceramic one.*

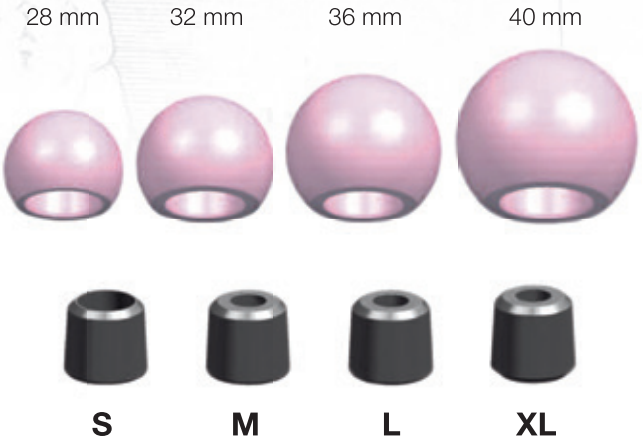


Figure 47

BIOLOX® DELTA CERAMIC FEMORAL HEADS FOR REVISION SURGERY

The BIOLOX® DELTA ceramic femoral heads for revision surgery are provided, in the same package, as two separate components: BIOLOX® DELTA head (available in 28, 32, 36 and 40 mm diameters) and a metallic taper sleeve (available S, M, L and XL lengths) *(Fig. 47)*. BIOLOX® DELTA head and metallic taper sleeve must be implanted already coupled together as described in the assembly instructions below. The complete range of sizes is reported in the following table:

CODE	DIAMETER	SLEEVE TAPER SIZE	OFFSET
5010.42.021	28 mm	S	- 3 mm
5010.42.022		M	0 mm
5010.42.023		L	+ 4 mm
5010.42.024		XL	+ 7 mm
5010.42.031	32 mm	S	- 3 mm
5010.42.032		M	0 mm
5010.42.033		L	+ 4 mm
5010.42.034		XL	+ 7 mm
5010.42.041	36 mm	S	- 3 mm
5010.42.042		M	0 mm
5010.42.043		L	+ 4 mm
5010.42.044		XL	+ 7 mm
5010.42.051	40 mm	S	- 3 mm
5010.42.052		M	0 mm
5010.42.053		L	+ 4 mm
5010.42.054		XL	+ 7 mm

BIOLOX® DELTA heads are designed to allow surgeons to utilize a ceramic head in revision arthroplasty.

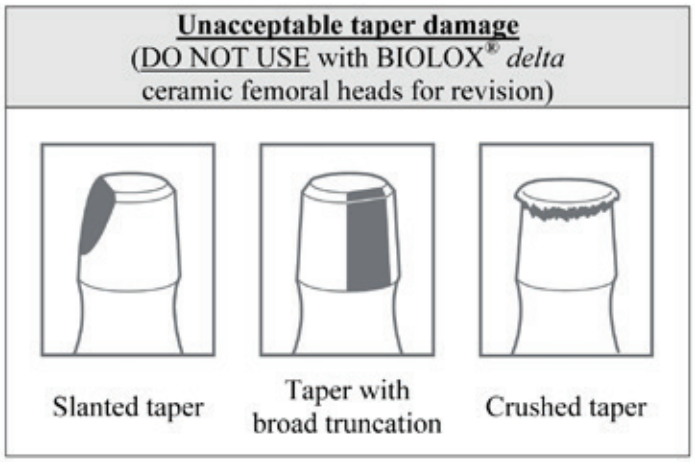


Figure 48

The BIOLOX® DELTA ceramic femoral heads are compatible with all Lima Corporate femoral components with a 12/14 tapers.

FEMORAL COMPONENT TAPER INSPECTION

After the removal of the femoral head during revision surgery, it is essential to examine the taper of the femoral component, which remains in-situ, for any type of damages.
The operating surgeon has to make sure that this damage is acceptable.

Inspection of the stem taper and decision criteria:

- Acceptable condition: used stem tapers displaying fine marks from head – stem disassembly
- Unacceptable stem taper deformations (Fig. 48). The BIOLOX® OPTION system must not be used under these conditions.

Figure 49

Figure 50

ASSEMBLY INSTRUCTIONS

All the tapers (ceramic head taper, metallic sleeve taper, taper of the femoral component remained insitu) must be clean and dry before assembly. The following steps should be performed:

1. Determine the appropriate metallic taper sleeve length and verify the joint stability using trial femoral heads. Then, verify the correct selection of BIOLOX® DELTA ceramic femoral heads for revision and metallic taper sleeve length as determined during the trialling phase;

2. Heads and taper sleeve components are packaged in the same box but not assembled. The surgeon should assemble the two components according to *figures 49 and 50*. The ceramic femoral head is placed on the taper sleeve and pressure is applied until resistance can be felt. It should be ensured that the ceramic femoral head is placed straight down on the sleeve;

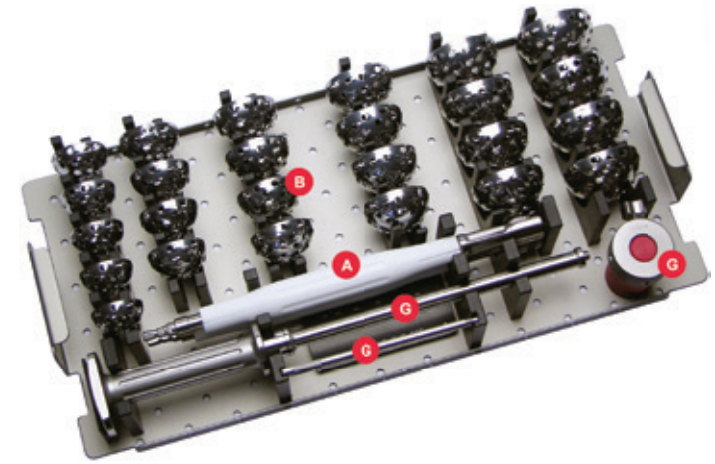
3. Place the assembled ceramic head on the taper of the femoral component remained in-situ with a twisting motion, while applying manual pressure until it locks. As a rule, it should be easy to place the BIOLOX® OPTION femoral head and sleeve on the stem taper. Should pressure be necessary to seat the BIOLOX® OPTION system, the system must not be used.

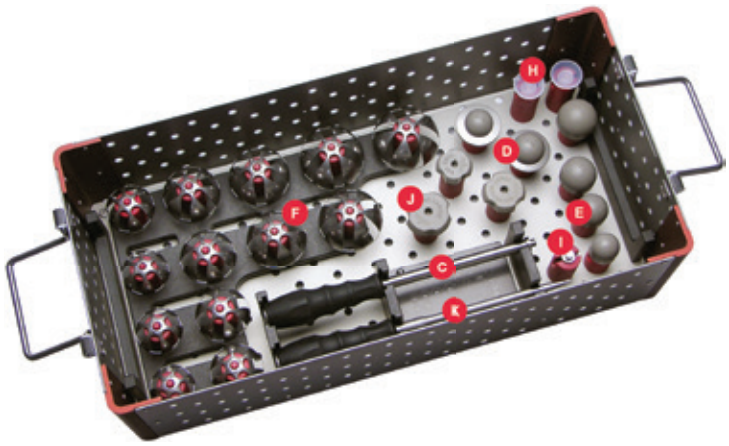
   Position the plastic impactor on the pole of the ceramic head and then fix it firmly on the stem taper with one moderate tap on the impactor in axial direction.

   Note. *Never use metal impactors on ceramic femoral heads. The use of metal impactors or any other metallic objects may scratch or crack the ceramic head bearing surface, compromising the integrity of the component. If the ceramic head becomes scratched or cracked, the head and taper sleeve must be replaced.*

4. To verify fixation of the head, attempt to remove the head by hand.

9055.28.000 "FAST" Acetabular Reamer Set (Zimmer-Hall connection)*





Ref.	CODE	DESCRIPTION	Qty.
A	9055.28.814	Reamer Handle Zimmer-Hall Connection	2
B	9055.28.942	"Fast" Acetabular Reamer Dia. 42mm	1
B	9055.28.943	"Fast" Acetabular Reamer Dia. 43mm	1
B	9055.28.944	"Fast" Acetabular Reamer Dia. 44mm	1
B	9055.28.945	"Fast" Acetabular Reamer Dia. 45mm	1
B	9055.28.946	"Fast" Acetabular Reamer Dia. 46mm	1
B	9055.28.947	"Fast" Acetabular Reamer Dia. 47mm	1
B	9055.28.948	"Fast" Acetabular Reamer Dia. 48mm	1
B	9055.28.949	"Fast" Acetabular Reamer Dia. 49mm	1
B	9055.28.950	"Fast" Acetabular Reamer Dia. 50mm	1
B	9055.28.951	"Fast" Acetabular Reamer Dia. 51mm	1
B	9055.28.952	"Fast" Acetabular Reamer Dia. 52mm	1
B	9055.28.953	"Fast" Acetabular Reamer Dia. 53mm	1
B	9055.28.954	"Fast" Acetabular Reamer Dia. 54mm	1
B	9055.28.955	"Fast" Acetabular Reamer Dia. 55mm	1
B	9055.28.956	"Fast" Acetabular Reamer Dia. 56mm	1
B	9055.28.957	"Fast" Acetabular Reamer Dia. 57mm	1
B	9055.28.958	"Fast" Acetabular Reamer Dia. 58mm	1
B	9055.28.959	"Fast" Acetabular Reamer Dia. 59mm	1
B	9055.28.960	"Fast" Acetabular Reamer Dia. 60mm	1
B	9055.28.961	"Fast" Acetabular Reamer Dia. 61mm	1
B	9055.28.962	"Fast" Acetabular Reamer Dia. 62mm	1
B	9055.28.963	"Fast" Acetabular Reamer Dia. 63mm	1
B	9055.28.964	"Fast" Acetabular Reamer Dia. 64mm	1
B	9055.28.965	"Fast" Acetabular Reamer Dia. 65mm	1
B	9055.28.966	"Fast" Acetabular Reamer Dia. 66mm	1
C	9055.28.400	Multi Purpose Handle	1
D	9056.10.010	Cemented Cup Impactor Dia. 28mm	1
D	9056.10.020	Cemented Cup Impactor Dia. 32mm	1
E	9057.20.300	Liner Impactor for Dia. 28mm Head	1
E	9057.20.310	Liner Impactor for Dia. 32mm Head	1
E	9057.20.320	Liner Impactor for Dia. 36mm Head	1
E	9057.20.330	Liner Impactor for Dia. 40mm Head	1
F	9055.28.442	Trial Cup Dia. 42mm	1
F	9055.28.444	Trial Cup Dia. 44mm	1
F	9055.28.446	Trial Cup Dia. 46mm	1
F	9055.28.448	Trial Cup Dia. 48mm	1
F	9055.28.450	Trial Cup Dia. 50mm	1
F	9055.28.452	Trial Cup Dia. 52mm	1
F	9055.28.454	Trial Cup Dia. 54mm	1
F	9055.28.456	Trial Cup Dia. 56mm	1
F	9055.28.458	Trial Cup Dia. 58mm	1
F	9055.28.460	Trial Cup Dia. 60mm	1
F	9055.28.462	Trial Cup Dia. 62mm	1
F	9055.28.464	Trial Cup Dia. 64mm	1
F	9055.28.466	Trial Cup Dia. 66mm	1
G	9057.20.555	Impactor - Positioner - Aligner	1
H	9058.85.090	Ceramic Liner Positioner	2
I	9058.85.110	Joint for Ceramic Liner Positioner	1
J	9058.85.210	SMALL Dia. 32mm Liner Positioner	1
J	9058.85.220	MEDIUM-LARGE Dia. 36mm Liner Positioner	1
J	9058.85.230	LARGE Dia. 40mm Liner Positioner	1
K	9095.10.225	Fixed Screwdriver	1
	9055.28.900	Sterilizable Box	1

*Note.

9055.27.000 "FAST" Acetabular Reamer Set (AO connection)
9055.29.000 "FAST" Acetabular Reamer Set (Hudson connection)

DELTA PRIMARY SURGICAL TECHNIQUE
Instrument Set

9055.49.000 Large Diameter Acetabular Cups: Fast Reamer Set*

Ref.	CODE	DESCRIPTION	Qty.
A	9055.28.468	Trial Cup Dia. 68mm	1
A	9055.28.470	Trial Cup Dia. 70mm	1
A	9055.28.472	Trial Cup Dia. 72mm	1
A	9055.28.474	Trial Cup Dia. 74mm	1
A	9055.28.476	Trial Cup Dia. 76mm	1
B	9055.28.967	"Fast" Acetabular Reamer Dia. 67mm	1
B	9055.28.968	"Fast" Acetabular Reamer Dia. 68mm	1
B	9055.28.969	"Fast" Acetabular Reamer Dia. 69mm	1
B	9055.28.970	"Fast" Acetabular Reamer Dia. 70mm	1
B	9055.28.971	"Fast" Acetabular Reamer Dia. 71mm	1
B	9055.28.972	"Fast" Acetabular Reamer Dia. 72mm	1
B	9055.28.973	"Fast" Acetabular Reamer Dia. 73mm	1
B	9055.28.974	"Fast" Acetabular Reamer Dia. 74mm	1
B	9055.28.975	"Fast" Acetabular Reamer Dia. 75mm	1
B	9055.28.976	"Fast" Acetabular Reamer Dia. 76mm	1
C	9055.28.998	Cross-To-Fast Reamer Adaptor	1
	9055.49.950	Sterilizable Box	1

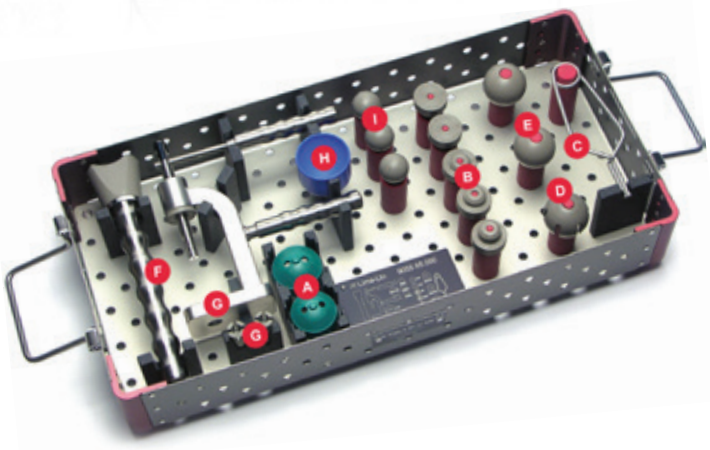
*Upon Request

9055.50.000 Instrument Set for DELTA TT/PF/FINS Cups

Ref.	CODE	DESCRIPTION	Qty.
A	9055.50.020	Trial Liner, Large for Head Dia. 28mm	1
A	9055.50.025	Trial Liner, Large for Head Dia. 32mm	1
A	9055.50.030	Trial Liner, Large for Head Dia. 36mm	1
A	9055.50.035	Trial Liner, Large for Head Dia. 40mm	1
A	9055.50.120	Trial Liner, Medium for Head Dia. 28mm	1
A	9055.50.125	Trial Liner, Medium for Head Dia. 32mm	1
A	9055.50.130	Trial Liner, Medium for Head Dia. 36mm	1
A	9055.50.220	Trial Liner, Small for Head Dia. 28mm	1
A	9055.50.225	Trial Liner, Small for Head Dia. 32mm	1
A	9055.50.230	Trial Liner, Small for Head Dia. 36mm	1
B	9095.10.521	Trial Head Low Taper 12/14 Dia. 32mm S	1
B	9095.10.522	Trial Head Low Taper 12/14 Dia. 32mm M	1
B	9095.10.523	Trial Head Low Taper 12/14 Dia. 32mm L	1
B	9095.10.531	Trial Head Low Taper 12/14 Dia. 36mm S	1
B	9095.10.532	Trial Head Low Taper 12/14 Dia. 36mm M	1
B	9095.10.533	Trial Head Low Taper 12/14 Dia. 36mm L	1
B	9095.10.534	Trial Head Low Taper 12/14 Dia. 36mm XL	1
B	9095.10.541	Trial Head Low Taper 12/14 Dia. 40mm S	1
B	9095.10.542	Trial Head Low Taper 12/14 Dia. 40mm M	1
B	9095.10.543	Trial Head Low Taper 12/14 Dia. 40mm L	1
B	9095.10.544	Trial Head Low Taper 12/14 Dia. 40mm XL	1
C	9055.51.015	Wrench for Cups DELTA-PF	1
D	9055.51.310	Adapter Small for Cups Wrench	1
D	9055.51.320	Adapter Medium for Cups Wrench	1
D	9055.51.330	Adapter Large for Cups Wrench	1
	9055.50.920	Sterilizable Box	1

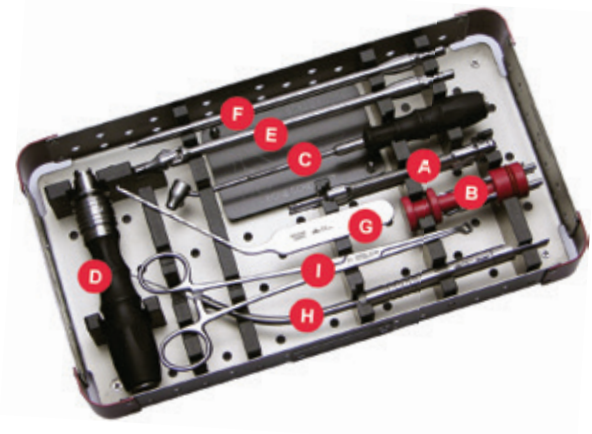
DELTA PRIMARY SURGICAL TECHNIQUE
Instrument Set

9055.65.000 Instrument Set for Double Mobility and Met for DELTA Cups



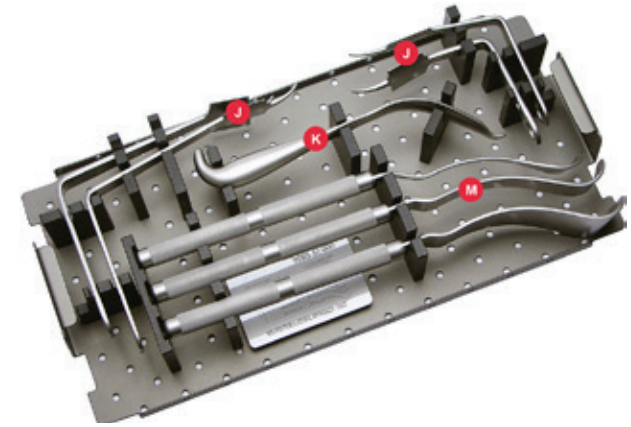
Ref.	CODE	DESCRIPTION	Qty.
A	9055.66.400	Trial Liner #M for Double Mobility Dia. 40mm	1
A	9058.85.042	Trial Liner #L for Met and Double Mobility Dia. 42mm	1
B	9050.45.010	Trial Short Adaptor	1
B	9050.45.020	Trial Medium Adaptor	1
B	9050.45.030	Trial Long Adaptor	1
B	9050.45.040	Trial XLong Adaptor	1
B	9050.45.050	Trial XXLong Adaptor	1
C	9013.30.100	Pliers for Trial Adaptor	1
D	9050.45.420	Trial Head Dia. 42mm	1
E	9055.65.040	Trial Mobile Liner Dia. 40mm for Heads Dia. 28mm	1
E	9055.65.042	Trial Mobile Liner Dia. 42mm for Heads Dia. 28mm	1
F	9055.60.750	Implant Reducer	1
G	9055.60.100	Head-Liner Clamp	1
H	9055.60.101	Holder for Mobile Liners Dia. 42-46	1
I	9095.10.611	Trial Head Low Taper 12/14 Heads Dia. 28mm Small	1
I	9095.10.612	Trial Head Low Taper 12/14 Heads Dia. 28mm Medium	1
I	9095.10.613	Trial Head Low Taper 12/14 Heads Dia. 28mm Large	1
	9055.65.950	Sterilizable Box	1

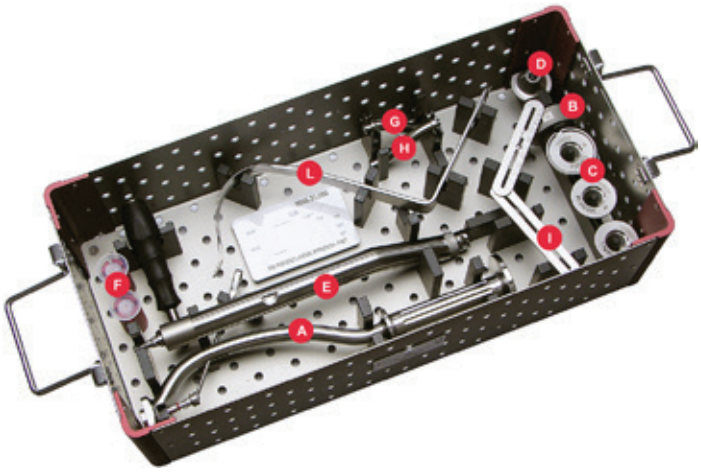
9084.21.000 Set for Bone Screw



Ref.	CODE	DESCRIPTION	Qty.
A	9084.20.010	Flexible Drill Shaft	2
B	9084.20.100	SHORT Drill - Dia. 4.5mm Length 30mm	2
B	9084.20.110	LONG Drill - Dia. 4.5mm Length 50mm	2
C	9084.20.150	Drill Guide - Dia. 4.5mm	1
D	9084.20.305	Ratcheting Handle	1
E	9084.20.310	Cardan Hex Screwdriver Insert	1
F	9084.20.320	Universal Hex Screwdriver Insert	1
G	9084.20.400	Depth Gauge	1
H	9084.20.410	Curved Depth Gauge	1
I	9095.10.115	Screws Holding Forceps	1
	9084.21.950	Sterilizable Box	1

9095.32.000 “Fast” Minimal Invasive General Instrument Set - Post.-Lat. Approach

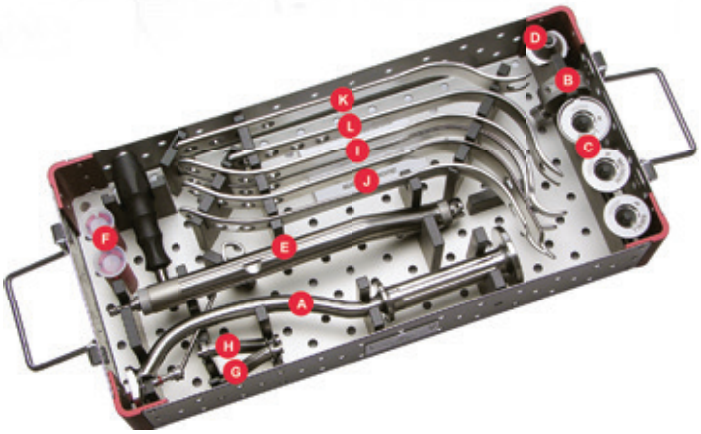




Ref.	CODE	DESCRIPTION	Qty.
A	9055.51.035	Curved Impactor	1
B	9055.51.036	Alingment Ring	1
C	9055.51.040	Adapter Small for Curved Impactor	1
C	9055.51.041	Adapter Medium for Curved Impactor	1
C	9055.51.042	Adapter Large for Curved Impactor	1
D	9055.51.050	Trial Cups Adapter	1
E	9055.28.816	Fast Zimmer Mini-Invasive Handle Reamer	1
F	9058.85.090	Ceramic Liner Positioner	2
G	9058.85.100	45° Joint for Ceramic Liner Positioner	1
H	9058.85.120	45° Joint for Beater	1
I	9095.10.060	Incision Ruler	1
J	9095.10.061	Retractor Small Narrow Hohmann	1
J	9095.10.063	Retractor Large Narrow Hohmann	1
J	9095.10.071	Retractor Small Wide Hohmann	1
J	9095.10.073	Retractor Large Wide Hohmann	1
K	9095.10.080	Aufranc Cobra Retractor	1
L	9095.10.085	Large C Retractor	1
M	9095.10.091	Small Femoral Retractor	1
M	9095.10.092	Medium Femoral Retractor	1
M	9095.10.093	Large Femoral Retractor	1
	9095.32.950	Sterilizable Box	1

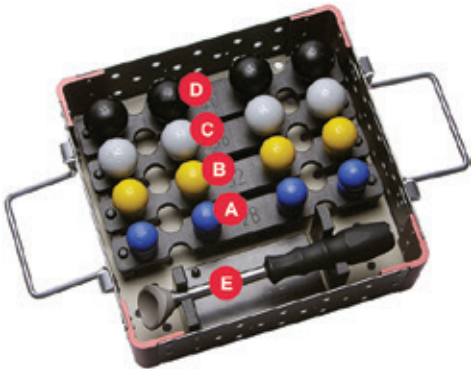
DELTA PRIMARY SURGICAL TECHNIQUE
Instrument Set

▼ 9095.33.000 “Fast” Minimal Invasive General Instrument Set - Anterior Approach



Ref.	CODE	DESCRIPTION	Qty.
A	9055.51.035	Curved Impactor	1
B	9055.51.036	Aligment ring	1
C	9055.51.040	Adapter Small for Curved Impactor	1
C	9055.51.041	Adapter Medium for Curved Impactor	1
C	9055.51.042	Adapter Large for Curved Impactor	1
D	9055.51.050	Trial Cups Adapter	1
E	9055.28.816	Fast Zimmer Mini-Invasive Handle Reamer	1
F	9058.85.090	Ceramic Liner Positioner	2
G	9058.85.100	45° Joint for Ceramic Liner Positioner	1
H	9058.85.120	45° Joint for Beater	1
I	9095.10.560	Cobra Style Hohmann Retractor	2
J	9095.10.561	Single Pronge Large Hohmann Retractor	1
J	9095.10.562	Single Pronge Narrow Hohmann Retractor	1
K	9095.10.563	Femoral Elevator	1
L	9095.10.564	Offset Femoral Elevator	1
	9095.33.950	Sterilizable Box	1

9095.50.000 Instrument set for trial heads



Ref.	CODE	DESCRIPTION	Qty.
A	9095.10.711	Trial Head Dia. 28mm S	1
A	9095.10.712	Trial Head Dia. 28mm M	1
A	9095.10.713	Trial Head Dia. 28mm L	1
A	9095.10.714	Trial Head Dia. 28mm XL	1
B	9095.10.721	Trial Head Dia. 32mm S	1
B	9095.10.722	Trial Head Dia. 32mm M	1
B	9095.10.723	Trial Head Dia. 32mm L	1
B	9095.10.724	Trial Head Dia. 32mm XL	1
C	9095.10.731	Trial Head Dia. 36mm S	1
C	9095.10.732	Trial Head Dia. 36mm M	1
C	9095.10.733	Trial Head Dia. 36mm L	1
C	9095.10.734	Trial Head Dia. 36mm XL	1
D	9095.10.741	Trial Head Dia. 40mm S	1
D	9095.10.742	Trial Head Dia. 40mm M	1
D	9095.10.743	Trial Head Dia. 40mm L	1
D	9095.10.744	Trial Head Dia. 40mm XL	1
E	9095.11.110	Femoral Head Impactor	1
	9095.50.950	Sterilizable Box	1

DELTA PRIMARY SURGICAL TECHNIQUE

Product codes

DELTA-TT ACETABULAR CUPS

Ti6Al4V		FOR LINERS SIZE SMALL
	5552.15.440	Dia. 44 mm
	5552.15.460	Dia. 46 mm
	5552.15.480	Dia. 48 mm
		FOR LINERS SIZE MEDIUM
	5552.15.500	Dia. 50 mm
	5552.15.520	Dia. 52 mm
		FOR LINERS SIZE LARGE
	5552.15.540	Dia. 54 mm
	5552.15.560	Dia. 56 mm
	5552.15.580	Dia. 58 mm
	5552.15.600	Dia. 60 mm
	5552.15.620	Dia. 62 mm
	5552.15.640	Dia. 64 mm

DELTA-TT LARGE DIAMETER ACETABULAR CUPS

Ti6Al4V		FOR LINERS SIZE LARGE	
	5552.15.660	Dia. 66 mm	■
	5552.15.680	Dia. 68 mm	■
	5552.15.700	Dia. 70 mm	■
	5552.15.720	Dia. 72 mm	■
	5552.15.740	Dia. 74 mm	■
	5552.15.760	Dia. 76 mm	■

■ Upon Request

DELTA-PF ACETABULAR CUPS

Ti6Al4V + PoroTi + HA		FOR LINERS SIZE SMALL	
	5551.25.440	Dia. 44 mm	
	5551.25.460	Dia. 46 mm	
	5551.25.480	Dia. 48 mm	
		FOR LINERS SIZE MEDIUM	
	5551.25.500	Dia. 50 mm	
	5551.25.520	Dia. 52 mm	
		FOR LINERS SIZE LARGE	
	5551.25.501*	Dia. 50 mm	■
	5551.25.521*	Dia. 52 mm	■
	5551.25.541	Dia. 54 mm	
	5551.25.560	Dia. 56 mm	
	5551.25.580	Dia. 58 mm	
	5551.25.600	Dia. 60 mm	
	5551.25.620	Dia. 62 mm	
	5551.25.640	Dia. 64 mm	■
	5551.25.660	Dia. 66 mm	■

* Note: cups dia. 50 and 52 mm size large not suitable for BIOLOX® liners

DELTA-FINS ACETABULAR CUPS

Ti6Al4V + PoroTi + HA		FOR LINERS SIZE SMALL	
	5550.25.420	Dia. 42 mm	■
	5550.25.440	Dia. 44 mm	
	5550.25.460	Dia. 46 mm	
	5550.25.480	Dia. 48 mm	
		FOR LINERS SIZE MEDIUM	
	5550.25.500	Dia. 50 mm	
	5550.25.520	Dia. 52 mm	
		FOR LINERS SIZE LARGE	
	5550.25.541	Dia. 54 mm	
	5550.25.560	Dia. 56 mm	
	5550.25.580	Dia. 58 mm	
	5550.25.600	Dia. 60 mm	
	5550.25.620	Dia. 62 mm	
	5550.25.640	Dia. 64 mm	
	5550.25.660	Dia. 66 mm	

■ Upon Request

DELTA PRIMARY SURGICAL TECHNIQUE

Product codes

SPACERS

Ti6Al4V	5885.15.320	Neutral Spacer Size S+5 (Use Liner X Small)
	5885.15.420	Neutral Spacer Size M+5 (Use Liner Small)
	5886.15.520	Neutral Spacer Size L+5 (Use Liner Medium)

DELTA LINERS

BIOLOX® DELTA	5885.42.052	I.D. 28 mm - Size X SMALL
	5885.42.155	I.D. 32 mm - Size SMALL
	5885.42.258	I.D. 36 mm - Size MEDIUM
	5885.42.260	I.D. 36 mm - Size LARGE
	5885.42.262	I.D. 40 mm - Size LARGE

NEUTRAL LINERS

LimaVit™	5885.54.055	I.D. 28 mm - Size SMALL
	5885.54.058	I.D. 28 mm - Size MEDIUM
	5885.54.158	I.D. 32 mm - Size MEDIUM
	5885.54.060	I.D. 28 mm - Size LARGE
	5885.54.160	I.D. 32 mm - Size LARGE
	5885.54.260	I.D. 36 mm - Size LARGE

Note: LimaVit™ = “UHMWPE X-Lima + Vitamin E”

PROTRUDED LINERS

LimaVit™	5886.54.055	I.D. 28 mm - Size SMALL
	5886.54.058	I.D. 28 mm - Size MEDIUM
	5886.54.158	I.D. 32 mm - Size MEDIUM
	5886.54.060	I.D. 28 mm - Size LARGE
	5886.54.160	I.D. 32 mm - Size LARGE
	5886.54.260	I.D. 36 mm - Size LARGE

Note: LimaVit™ = “UHMWPE X-Lima + Vitamin E”

Product codes

NEUTRAL LINERS

UHMWPE X-LIMA + Ti6Al4V	5885.51.055	I.D. 28 mm - Size SMALL
	5885.51.058	I.D. 28 mm - Size MEDIUM
	5885.51.158	I.D. 32 mm - Size MEDIUM
	5885.51.060	I.D. 28 mm - Size LARGE
	5885.51.160	I.D. 32 mm - Size LARGE
	5885.51.260	I.D. 36 mm - Size LARGE

Note: X-Lima = “Cross-Linked”

PROTRUDED LINERS

UHMWPE X-LIMA + Ti6Al4V	5886.51.055	I.D. 28 mm - Size SMALL
	5886.51.058	I.D. 28 mm - Size MEDIUM
	5886.51.158	I.D. 32 mm - Size MEDIUM
	5886.51.060	I.D. 28 mm - Size LARGE
	5886.51.160	I.D. 32 mm - Size LARGE
	5886.51.260	I.D. 36 mm - Size LARGE

Note: X-Lima = “Cross-Linked”

NEUTRAL LINERS

UHMWPE + Ti6Al4V	5885.50.055	I.D. 28 mm - Size SMALL
	5885.50.058	I.D. 28 mm - Size MEDIUM
	5885.50.060	I.D. 28 mm - Size LARGE

PROTRUDED LINERS

UHMWPE + Ti6Al4V	5886.50.055	I.D. 28 mm - Size SMALL
	5886.50.058	I.D. 28 mm - Size MEDIUM
	5886.50.060	I.D. 28 mm - Size LARGE

DELTA PRIMARY SURGICAL TECHNIQUE

Product codes

40 mm COUPLING FOR DUAL MOBILITY

CoCrMo	5885.09.040	Liner M for Dual Mobility dia. 40 mm

40 mm COUPLING FOR DUAL MOBILITY

BIOLOX® DELTA	5885.42.262	Liner L for Dual Mobility dia. 40 mm

MOBILE LINER

UHMWPE	5566.50.401	I.D. 28 mm - dia. 40

Product codes

42 mm COUPLING FOR DUAL MOBILITY

CoCrMo	5885.09.042	Liner L for Dual Mobility dia. 42 mm	■

MOBILE LINERS

UHMWPE	5566.50.420	I.D. 28 mm - dia. 42	■
	5565.50.420	I.D. 22 mm - dia. 42	■

HEADS - TAPER 12/14

BIOLOX® DELTA		DIA. 28 mm	
	5010.42.281	S	
	5010.42.282	M	
	5010.42.283	L	
		DIA. 32 mm	
	5010.42.321	S	
	5010.42.322	M	
	5010.42.323	L	
		DIA. 36 mm	
	5010.42.361	S	
	5010.42.362	M	
	5010.42.363	L	
	5010.42.364	XL	■
		DIA. 40 mm	
	5010.42.401	S	
	5010.42.402	M	
	5010.42.403	L	
	5010.42.404	XL	■

■ Upon Request

DELTA PRIMARY SURGICAL TECHNIQUE

Product codes

HEADS- TAPER 12/14

CoCrMo		DIA. 28 mm	
	5010.09.281	S	
	5010.09.282	M	
	5010.09.283	L	
	5010.09.284	XL	■
	5010.09.285	XXL	■
	5010.09.286	XXXL	■
		DIA. 32 mm	
	5010.09.321	S	
	5010.09.322	M	
	5010.09.323	L	
	5010.09.324	XL	■
	5010.09.325	XXL	■
	5010.09.326	XXXL	■
		DIA. 36 mm	
	5010.09.361	S	
	5010.09.362	M	
	5010.09.363	L	
	5010.09.364	XL	■
	5010.09.365	XXL	■
	5010.09.366	XXXL	■

HEADS - TAPER 12/14

FeCrNiMn-MoNbN		DIA. 22 mm	
	2416.07.221	- 2	■
	2416.07.222	0	■
	2416.07.223	+ 4	■

REVISION HEADS - TAPER 12/14

BIOLOX® DELTA + Ti6Al4V		DIA. 28 mm	
	5010.42.021	S	■
	5010.42.022	M	■
	5010.42.023	L	■
	5010.42.024	XL	■
		DIA. 32 mm	
	5010.42.031	S	■
	5010.42.032	M	■
	5010.42.033	L	■
	5010.42.034	XL	■
		DIA. 36 mm	
	5010.42.041	S	■
	5010.42.042	M	■
	5010.42.043	L	■
	5010.42.044	XL	■
		DIA. 40 mm	
	5010.42.051	S	■
	5010.42.052	M	■
	5010.42.053	L	■
	5010.42.054	XL	■

BONE SCREWS

Ti6Al4V		DIA. 6.5 mm
	8420.15.010	h. 20 mm
	8420.15.020	h. 25 mm
	8420.15.030	h. 30 mm
	8420.15.040	h. 35 mm
	8420.15.050	h. 40 mm
	8420.15.060	h. 45 mm
	8420.15.070	h. 50 mm
	8420.15.080	h. 55 mm
	8420.15.090	h. 60 mm

■ Upon Request

Notes

Notes

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