



Ortho Development® Corporation designs, manufactures, and distributes orthopedic implants and related surgical instrumentation—with a specialty focus on hip and knee joint replacement, trauma fracture repair, and spinal fixation. Ortho was founded in 1994 and is located at the base of the Wasatch Mountains in the Salt Lake City suburb of Draper, Utah. The company has established distribution throughout the United States and Japan, along with other select international markets.

# Ovation® Hip System

## Surgical Technique



## Ovation Hip System Surgical Technique

Ovation Designing Surgeons:

**Andrew Petrella, M.D.**

Lecanto, FL

**Richard Vlasak, M.D.**

Gainesville, FL

Ovation Tribute Designing Surgeons:

**Daniel C. Allison, M.D.**

Los Angeles, CA

**Cass Nakasone, M.D.**

Honolulu, HI

**David M. Ott, M.D.**

Phoenix, AZ

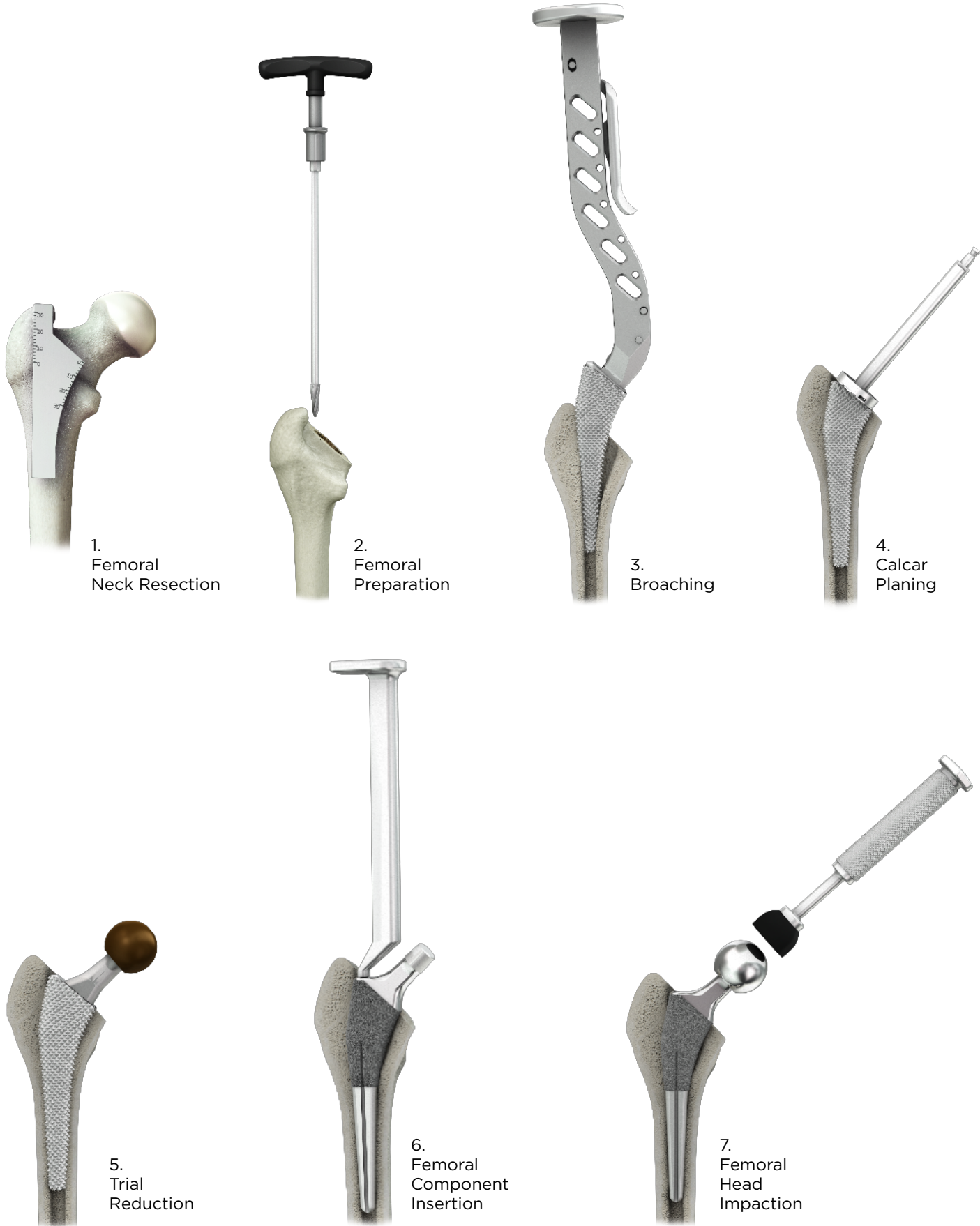
The following technique is a general guide for the instrumentation of the Ovation® Hip System. It is expected that the surgeon is already familiar with the fundamentals of Total Hip Arthroplasty (THA). Each patient represents an individual case that may require modification of the technique according to the surgeon's judgment and experience.

Please refer to the Instructions for Use (IFU) for the Ovation and Ovation Tribute Hip Stems for intended uses/indications, device description, contraindications, precautions, warnings and potential risks.

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# Surgical Technique Overview



# 1. Preoperative Planning

Preoperative planning is essential to prepare for the different situations that may arise during Total Hip Arthroplasty. The preoperative planning phase should include patient history, physical exam, and standardized quality radiographs. Magnification markers should be

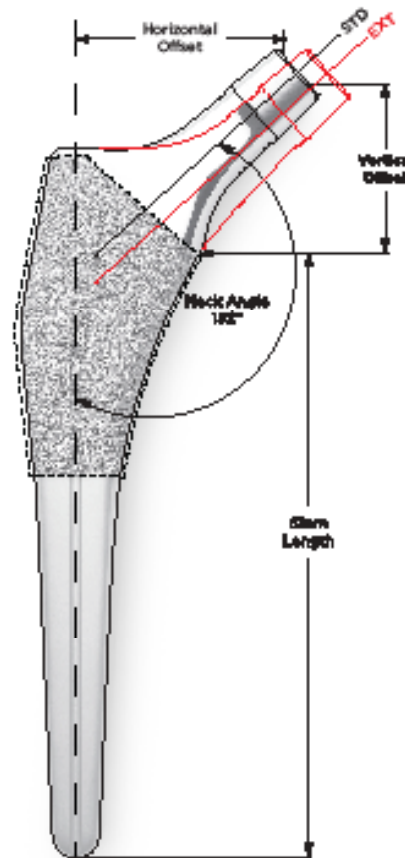
utilized to verify magnification. The A/P radiograph should be used to plan for Stem size, femoral head center of rotation, and femoral offset.

Once measurements are made the neck resection level can be marked for verification during surgery.

## OVATION | STANDARD AND EXTENDED SIZES

SIZE	STEM LENGTH	NECK ANGLE	HORIZONTAL OFFSET (STD)	HORIZONTAL OFFSET (EXT)	VERTICAL OFFSET	PROXIMAL WIDTH (M/L)	DISTAL WIDTH (M/L)
1	98	132	34	39	29	26	5
2	106	132	34	39	29.5	27	6
3	108	132	35	40	30	28	6
4	110	132	37	43	32	29	7
5	114	132	38	44	32	30	8
6	118	132	38	44	33	31	9
7	122	132	42	49	34	32	10
8	126	132	43	50	34	34	11
9	130	132	44	51	34.5	36	13
10	134	132	47	55	36	38	16
11	138	132	48	56	36	40	18
12	142	132	49	57	36	42	20

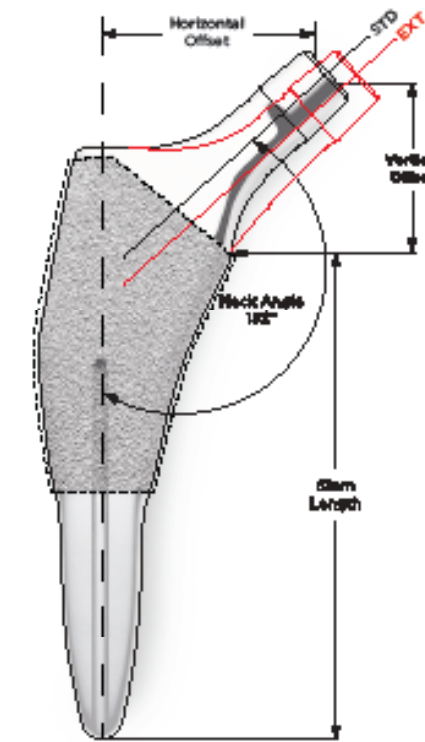
Ovation stem dimensions and offsets (all dimensions are in mm)



## OVATION TRIBUTE | STANDARD AND EXTENDED SIZES

SIZE	STEM LENGTH	NECK ANGLE	HORIZONTAL OFFSET (STD)	HORIZONTAL OFFSET (EXT)	VERTICAL OFFSET	PROXIMAL WIDTH (M/L)	DISTAL WIDTH (M/L)
1	74	132	34	39	29	26	8
2	77	132	34	39	29.5	27	9
3	80	132	35	40	30	28	9
4	83	132	37	43	32	29	10
5	86	132	38	44	32	30	11
6	89	132	38	44	33	31	12
7	92	132	42	49	34	32	13
8	95	132	43	50	34	34	14
8.5	96.5	132	43	50	34.5	35	15
9	98	132	44	51	34.5	36	16
9.5	99.5	132	44	51	35	37	17
10	101	132	47	55	36	38	18
10.5	102.5	132	47	55	36	39	18.5
11	104	132	48	56	36	40	18.5
11.5	105.5	132	48	56	36	41	18.5

Ovation Tribute stem dimensions and offsets (all dimensions are in mm)



## 2. Incision

Exposure is achieved through a variety of methods based upon surgeon preference and patient anatomy. Instrumentation is provided to facilitate various approaches including Director Anterior, Anterolateral and Posterolateral approaches.

## 3. Femoral Neck Resection

The Neck Resection Guide may be used to mark the desired neck resection level (Figure 1). This may also be confirmed by using the templated resection level. The point of the femoral neck resection should be marked with electrocautery that corresponds to both preoperative templating and intraoperative measurement.

Prior to the resection of the femoral head, assemble the Broach, Neck Trial and Femoral Head Trial that corresponds to the templated implant size. Place the construct or the Neck Resection Guide on the femur and verify the center of the rotation and the resection level of the proximal femur. Resect the femoral head with an oscillating saw.

## 4. Femoral Preparation

Use the Box Osteotome to open the femoral canal and to establish version (Figure 2). The Box Osteotome may also be used to help lateralize the position of the Starter Broach. Connect the Starter Reamer to the T-Handle and insert it into the femoral canal (Figure 3). The Ovation Hip System offers Broach Handles in both Straight and Dual Offset options. Select a Broach that is 2-3 sizes smaller than the preoperatively templated size. For smaller femurs or to help lateralize the Broach, the Chili Pepper, Modular Canal Finder, or Starter Broach may be used (Figure 4). Sequentially broach the femoral canal paying close attention to proper alignment and version (Figure 5). Continue broaching until contact is made with the medial and lateral cortices.

The final Broach should be rotationally stable and seated at the desired neck resection level to restore preoperatively planned leg length. It is important with this stem design to minimize rotation of the broach in the anterior and posterior planes. Excessive rotation of the broach can alter the shape between the broach and cancellous bone by causing voids between the final Implant and the cancellous bone.

Once the final Broach is rotationally stable, remove the Broach Handle leaving the Broach in place (Figure 6). The Final broach size will determine the final Implant size.

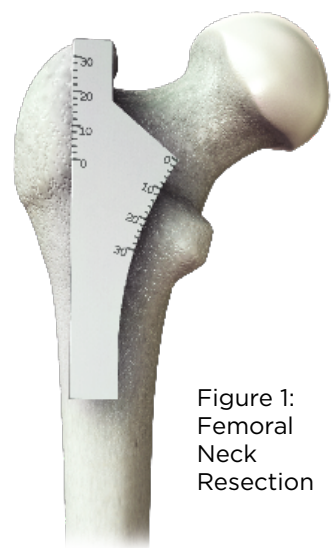


Figure 1:  
Femoral  
Neck  
Resection



Figure 2:  
Box  
Osteotome



Figure 3:  
Starter  
Reamer

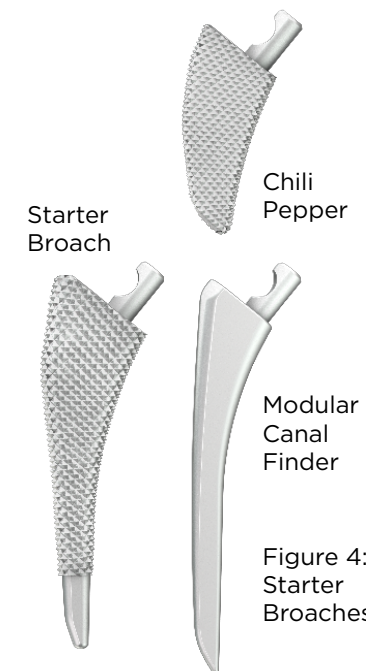


Figure 4:  
Starter  
Broaches



Figure 5:  
Broaching



Figure 6:  
Final  
Broach

## 5. Calcar Preparation

The Ovation and Ovation Tribute Stems are collarless, therefore, calcar planning is optional. If desired, place the Calcar Planar over the post of the fully seated Broach. To prevent the Calcar Planar from binding, engage power prior to making contact with the bone. Advance the Calcar Planar to the level of the Broach (Figure 7). Preparation of the calcar will help with final implantation by allowing visualization of the final position of the Implant relative to the Broach.

## 6. Trial Reduction

The Ovation Hip System offers Neck Trials and Head Trials to allow the surgeon to assess range of motion, leg length, joint stability, and component position (Figure 8). Standard and extended neck options are available for each stem size. The offset for the extended stem increases 5mm-8mm of direct lateralization depending on stem size. Build a trial construct using a standard or extended Neck Trial as determined by preoperative planning. Neck Trials are offered in specific size groupings based on broach size, see chart:

201-4001	Ovation Hip System Neck Trial 1-3 STD
201-4002	Ovation Hip System Neck Trial 4-6 STD
201-4003	Ovation Hip System Neck Trial 7-9 STD
201-4004	Ovation Hip System Neck Trial 10-12 STD
201-4005	Ovation Hip System Neck Trial 1-3 EXT
201-4006	Ovation Hip System Neck Trial 4-6 EXT
201-4007	Ovation Hip System Neck Trial 7-9 EXT
201-4008	Ovation Hip System Neck Trial 10-12 EXT

Attach the appropriate Femoral Head Trial to the Neck Trial based on planned length and acetabular liner compatibility. The Neck Trial can now be attached to the Broach and the hip reduced (Figure 9). Perform a range of motion and stability assessment of the hip. If necessary, change the offset, neck length, and acetabular liner until stability of the hip and desired leg length are achieved.

Dislocate the hip and remove the trial components, taking note of the final sizes chosen. Verify the size of the last Broach used for selection of the Ovation or Ovation Tribute Implant.

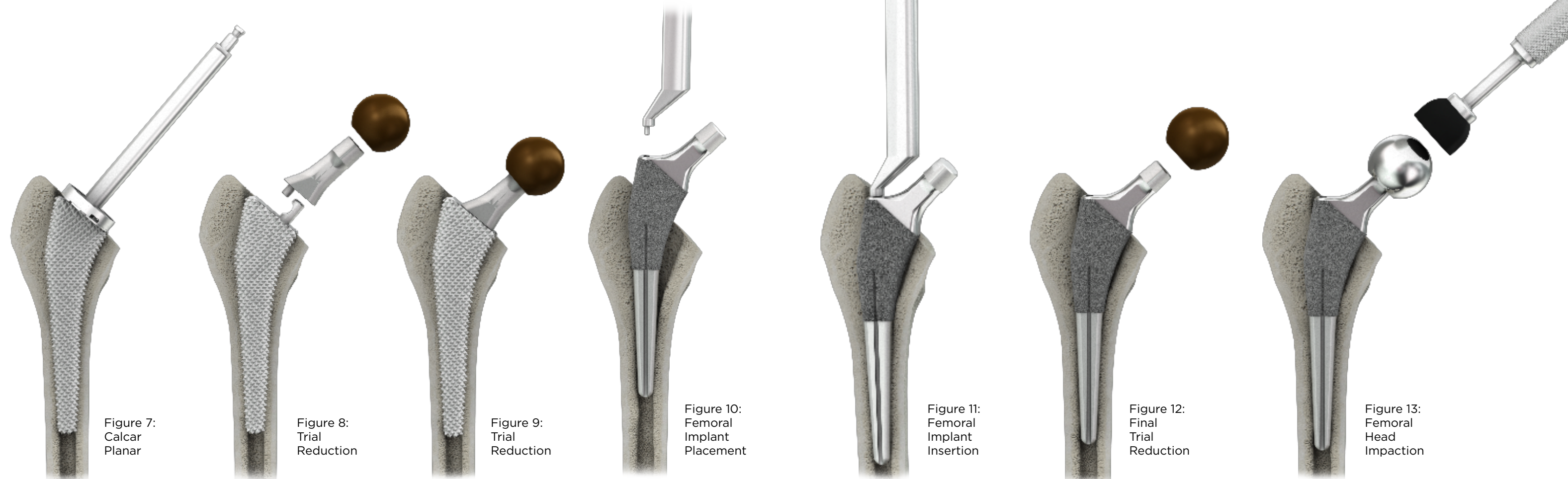


Figure 7:  
Calcar  
Planar

Figure 8:  
Trial  
Reduction

Figure 9:  
Trial  
Reduction

Figure 10:  
Femoral  
Implant  
Placement

Figure 11:  
Femoral  
Implant  
Insertion

Figure 12:  
Final  
Trial  
Reduction

Figure 13:  
Femoral  
Head  
Impaction

## 7. Femoral Component Insertion

Select the Implant that corresponds to the final Broach. In the area of the proximal plasma spray, the Implant fits line-to-line relative to the Broach. Stem Inserters are available in the following options: Straight, Constrained, Non-Constrained, and Offset. Place the Implant into the femoral canal by hand until it stops (Figure 10). This will help to position the Implant in the correct orientation prepared by the Broach. Use moderate blows of the Mallet to advance the Implant into final position. The Implant will be fully seated when the plasma spray coating of the stem sits flush to the prepared neck resection level (Figure 11).

A final trial reduction may be performed before final implantation (Figure 12). Before impacting the Femoral Head be sure the stem taper is clean and dry. Place the Femoral Head on the taper and use the Head Impactor and Mallet to seat the Femoral Head (Figure 13).

The hip should be reduced and taken through a full range of motion. After taking the hip through full range of motion and the desired result is achieved, the wound should be closed in a standard fashion.

# Ovation® Hip System Implants

OVATION	
ITEM #	DESCRIPTION
101-0001	Ovation Stem Size 1 STD
101-0002	Ovation Stem Size 2 STD
101-0003	Ovation Stem Size 3 STD
101-0004	Ovation Stem Size 4 STD
101-0005	Ovation Stem Size 5 STD
101-0006	Ovation Stem Size 6 STD
101-0007	Ovation Stem Size 7 STD
101-0008	Ovation Stem Size 8 STD
101-0009	Ovation Stem Size 9 STD
101-0010	Ovation Stem Size 10 STD
101-0011	Ovation Stem Size 11 STD
101-0012	Ovation Stem Size 12 STD
101-1001	Ovation Stem Size 1 EXT
101-1002	Ovation Stem Size 2 EXT
101-1003	Ovation Stem Size 3 EXT
101-1004	Ovation Stem Size 4 EXT
101-1005	Ovation Stem Size 5 EXT
101-1006	Ovation Stem Size 6 EXT
101-1007	Ovation Stem Size 7 EXT
101-1008	Ovation Stem Size 8 EXT
101-1009	Ovation Stem Size 9 EXT
101-1010	Ovation Stem Size 10 EXT
101-1011	Ovation Stem Size 11 EXT
101-1012	Ovation Stem Size 12 EXT



OVATION TRIBUTE	
ITEM #	DESCRIPTION
101-0301	Ovation Tribute Stem Size 1 STD
101-0302	Ovation Tribute Stem Size 2 STD
101-0303	Ovation Tribute Stem Size 3 STD
101-0304	Ovation Tribute Stem Size 4 STD
101-0305	Ovation Tribute Stem Size 5 STD
101-0306	Ovation Tribute Stem Size 6 STD
101-0307	Ovation Tribute Stem Size 7 STD
101-0308	Ovation Tribute Stem Size 8 STD
101-0385	Ovation Tribute Stem Size 8.5 STD
101-0309	Ovation Tribute Stem Size 9 STD
101-0395	Ovation Tribute Stem Size 9.5 STD
101-0310	Ovation Tribute Stem Size 10 STD
101-0396	Ovation Tribute Stem Size 10.5 STD
101-0311	Ovation Tribute Stem Size 11 STD
101-0397	Ovation Tribute Stem Size 11.5 STD
101-1301	Ovation Tribute Stem Size 1 EXT
101-1302	Ovation Tribute Stem Size 2 EXT
101-1303	Ovation Tribute Stem Size 3 EXT
101-1304	Ovation Tribute Stem Size 4 EXT
101-1305	Ovation Tribute Stem Size 5 EXT
101-1306	Ovation Tribute Stem Size 6 EXT
101-1307	Ovation Tribute Stem Size 7 EXT
101-1308	Ovation Tribute Stem Size 8 EXT
101-1385	Ovation Tribute Stem Size 8.5 EXT
101-1309	Ovation Tribute Stem Size 9 EXT
101-1395	Ovation Tribute Stem Size 9.5 EXT
101-1310	Ovation Tribute Stem Size 10 EXT
101-1396	Ovation Tribute Stem Size 10.5 EXT
101-1311	Ovation Tribute Stem Size 11 EXT
101-1397	Ovation Tribute Stem Size 11.5 EXT



## Femoral Head Implants

BIOLOX DELTA FEMORAL HEADS 28MM-36MM KIT: 136-2000-02:  
BIOLOX DELTA FEMORAL HEADS 40MM KIT: 136-4000-02:

ITEM#	DESCRIPTION
136-2800	Delta Femoral Head 28mm +0
136-2813	Delta Femoral Head 28mm +3
136-2830	Delta Femoral Head 28mm -3
136-3200	Delta Femoral Head 32mm +0
136-3213	Delta Femoral Head 32mm +3
136-3216	Delta Femoral Head 32mm +6
136-3230	Delta Femoral Head 32mm -3
136-3260	Delta Femoral Head 32mm -6
136-3600	Delta Femoral Head 36mm +0
136-3613	Delta Femoral Head 36mm +3
136-3616	Delta Femoral Head 36mm +6
136-3630	Delta Femoral Head 36mm -3
136-3660	Delta Femoral Head 36mm -6
136-4000	Delta Femoral Head 40mm +0
136-4013	Delta Femoral Head 40mm +3
136-4016	Delta Femoral Head 40mm +6
136-4019	Delta Femoral Head 40mm +9
136-4030	Delta Femoral Head 40mm -3
136-4060	Delta Femoral Head 40mm -6

COCR FEMORAL HEADS KIT-138-1000-02:

ITEM#	DESCRIPTION
138-2800	CoCr Femoral Head 28mm +0
138-2803	CoCr Femoral Head 28mm +3
138-2806	CoCr Femoral Head 28mm +6
138-2809	CoCr Femoral Head 28mm +9
138-2830	CoCr Femoral Head 28mm -3
138-2860	CoCr Femoral Head 28mm -6
138-3200	CoCr Femoral Head 32mm +0
138-3203	CoCr Femoral Head 32mm +3
138-3206	CoCr Femoral Head 32mm +6
138-3209	CoCr Femoral Head 32mm +9
138-3230	CoCr Femoral Head 32mm -3
138-3260	CoCr Femoral Head 32mm -6
138-3600	CoCr Femoral Head 36mm +0
138-3603	CoCr Femoral Head 36mm +3
138-3606	CoCr Femoral Head 36mm +6
138-3609	CoCr Femoral Head 36mm +9
138-3630	CoCr Femoral Head 36mm -3
138-3660	CoCr Femoral Head 36mm -6
138-4000	CoCr Femoral Head 40mm +0
138-4003	CoCr Femoral Head 40mm +3
138-4006	CoCr Femoral Head 40mm +6
138-4009	CoCr Femoral Head 40mm +9
138-4030	CoCr Femoral Head 40mm -3
138-4060	CoCr Femoral Head 40mm -6



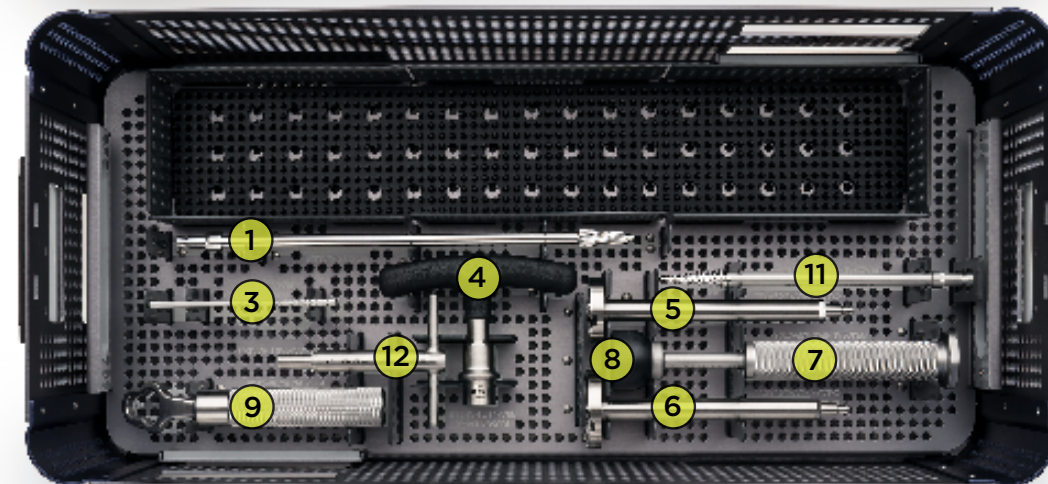
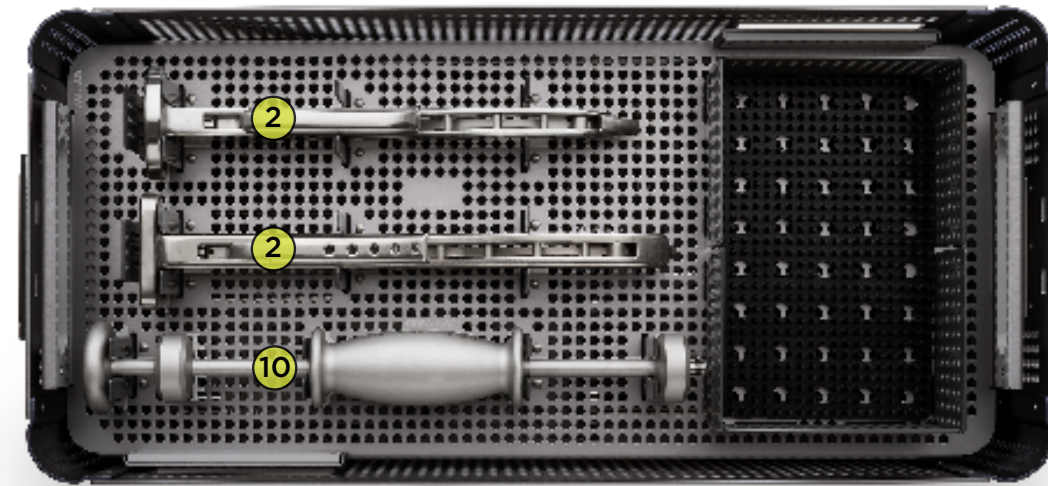
## Ovation Hip System Instrument Trays

201-9100: HIP COMMON

NUMBER	ITEM #	DESCRIPTION	QTY
1	800-0004	Alpine Starter Reamer	1
2	200-1000	Short Broach Handle Ovation	2
3	201-0000	Femoral Neck Resection Guide	1
4	215-0009	Hudson Large Female T-Handle	1
5	201-3001	Calcar Planer Small	1
6	201-3002	Calcar Planar Large	1
7	208-0300	Femoral Head Impactor	1
8	208-0340	40mm Femoral Head Impactor	1

201-9100: HIP COMMON, CONT.

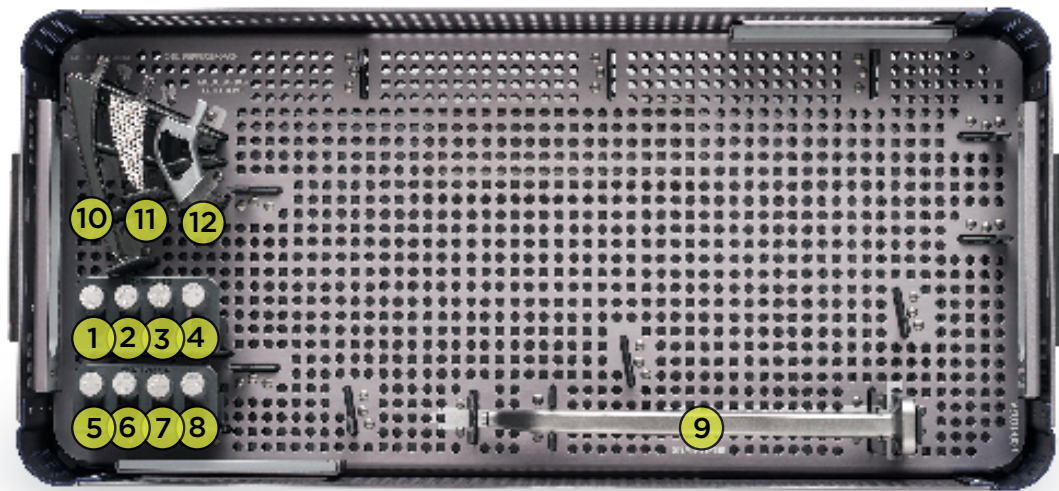
NUMBER	ITEM #	DESCRIPTION	QTY
9	201-0001	Ovation Hip Stem Extractor	1
10	211-0013	Slap Hammer	1
11	201-0018	Femoral Head Extractor	1
12	201-3003	Calcar Reamer T-handle Wrench	1
	600-0002	Double Level Instrument Case	1
	600-1001	Hip Common Instrument Lower Insert	1
	600-1002	Hip Common Instrument Upper Insert	1





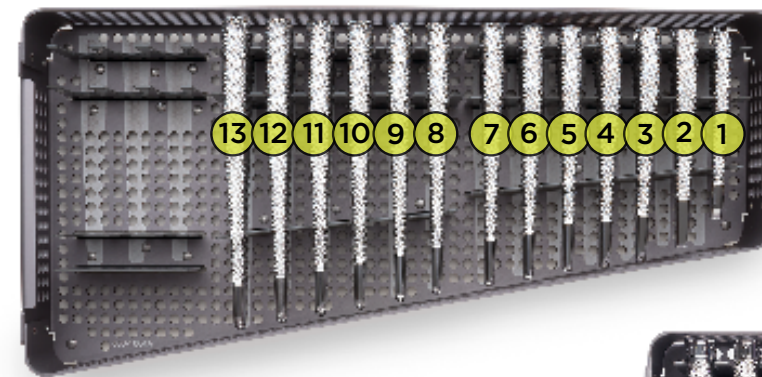
**201-9101: OVATION COMMON**

NUMBER	ITEM #	DESCRIPTION	QTY
1	201-4001	Neck Trial STD Size 1-3	1
2	201-4002	Neck Trial STD Size 4-6	1
3	201-4003	Neck Trial STD Size 7-9	1
4	201-4004	Neck Trial STD Size 10-12	1
5	201-4005	Neck Trial EXT Size 1-3	1
6	201-4006	Neck Trial EXT Size 4-6	1
7	201-4007	Neck Trial EXT Size 7-9	1
8	201-4008	Neck Trial EXT Size 10-12	1
9	201-0008	Ovation Hip Stem Inserter	1
10	201-2117	DAA Modular Canal Finder	1
11	201-2000	Chili Pepper Broach	1
12	201-2119	DAA Box Osteotome	1
	600-0001	Single Level Instrument Case	1
	600-0000	Instrument Case Lid	1
	600-1003A	Ovation Common Insert	1



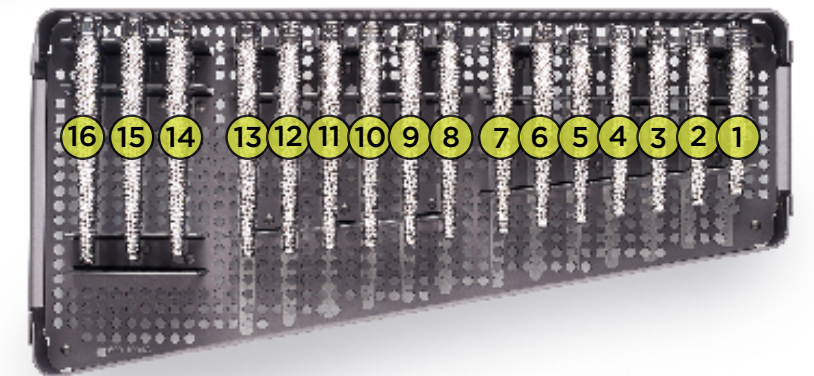
**201-9103: OVATION BROACHES**

NUMBER	ITEM #	DESCRIPTION	QTY
1	201-2120	Ovation Starter Broach	1
2	201-2101	Ovation Blunt Tip Broach Size 1	1
3	201-2102	Ovation Blunt Tip Broach Size 2	1
4	201-2103	Ovation Blunt Tip Broach Size 3	1
5	201-2104	Ovation Blunt Tip Broach Size 4	1
6	201-2105	Ovation Blunt Tip Broach Size 5	1
7	201-2106	Ovation Blunt Tip Broach Size 6	1
8	201-2107	Ovation Blunt Tip Broach Size 7	1
9	201-2108	Ovation Blunt Tip Broach Size 8	1
10	201-2109	Ovation Blunt Tip Broach Size 9	1
11	201-2110	Ovation Blunt Tip Broach Size 10	1
12	201-2111	Ovation Blunt Tip Broach Size 11	1
13	201-2112	Ovation Blunt Tip Broach Size 12	1
	600-1004A	Ovation Broach Caddy	1
	600-1005A	Ovation Broach Caddy Lid	1



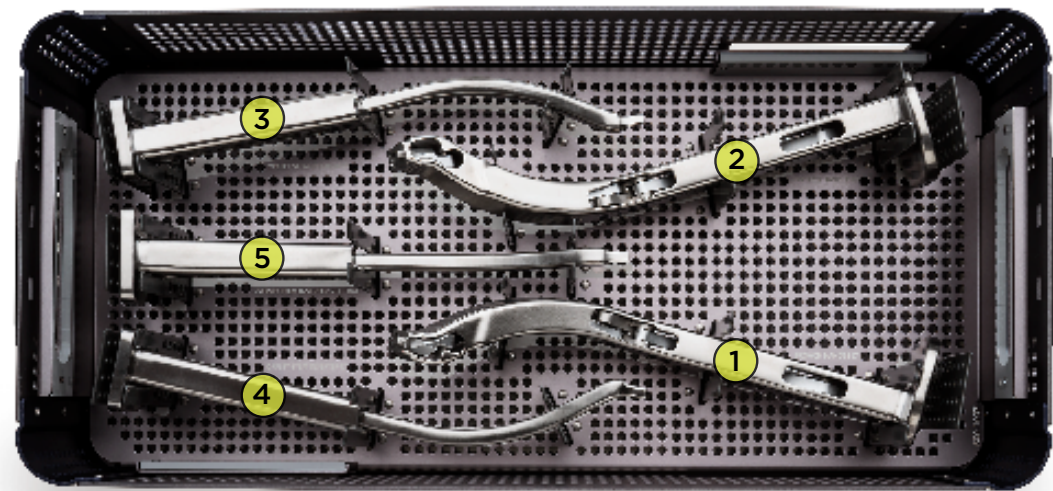
**201-9104: OVATION TRIBUTE BROACHES**

NUMBER	ITEM #	DESCRIPTION	QTY
1	201-2518	Ovation Tribute Starter Broach	1
2	201-2501	Ovation Tribute Blunt Tip Broach Size 1	1
3	201-2502	Ovation Tribute Blunt Tip Broach Size 2	1
4	201-2503	Ovation Tribute Blunt Tip Broach Size 3	1
5	201-2504	Ovation Tribute Blunt Tip Broach Size 4	1
6	201-2505	Ovation Tribute Blunt Tip Broach Size 5	1
7	201-2506	Ovation Tribute Blunt Tip Broach Size 6	1
8	201-2507	Ovation Tribute Blunt Tip Broach Size 7	1
9	201-2508	Ovation Tribute Blunt Tip Broach Size 8	1
10	201-2585	Ovation Tribute Blunt Tip Broach Size 8.5	1
11	201-2509	Ovation Tribute Blunt Tip Broach Size 9	1
12	201-2595	Ovation Tribute Blunt Tip Broach Size 9.5	1
13	201-2510	Ovation Tribute Blunt Tip Broach Size 10	1
14	201-2596	Ovation Tribute Blunt Tip Broach Size 10.5	1
15	201-2511	Ovation Tribute Blunt Tip Broach Size 11	1
16	201-2597	Ovation Tribute Blunt Tip Broach Size 11.5	1
	600-1004A	Ovation Broach Caddy	1
	600-1005A	Ovation Broach Caddy Lid	1
	600-1006	Ovation Tribute Silicone Insert	2



201-9105: OVATION DIRECT ANTERIOR

NUMBER	ITEM #	DESCRIPTION	QTY
1	201-0200	Ovation DAA Broach Handle Lt	1
2	201-0201	Ovation DAA Broach Handle Rt	1
3	201-0102	Offset Stem Inserter Rt	1
4	201-0103	Offset Stem Inserter Lt	1
5	201-0104	Offset Stem Inserter Neutral	1
	600-0000	Instrument Case Lid	1
	600-0003	Tall Single Level Instrument Case	1
	600-1007	Ovation DAA Insert	1



238-9001 FEMORAL HEAD TRIAL KIT

NUMBER	ITEM #	DESCRIPTION	NUMBER	ITEM #	DESCRIPTION
1	238-2230	Femoral Head Trial 22mm -3	26	238-3606	Femoral Head Trial 36mm +6
2	238-2200	Femoral Head Trial 22mm +0	27	238-3609	Femoral Head Trial 36mm +9
3	238-2203	Femoral Head Trial 22mm +3	28	238-4060	Femoral Head Trial 40mm -6
4	238-2206	Femoral Head Trial 22mm +6	29	238-4030	Femoral Head Trial 40mm -3
5	238-2630	Femoral Head Trial 26mm -3	30	238-4000	Femoral Head Trial 40mm +0
6	238-2600	Femoral Head Trial 26mm +0	31	238-4003	Femoral Head Trial 40mm +3
7	238-2603	Femoral Head Trial 26mm +3	32	238-4006	Femoral Head Trial 40mm +6
8	238-2606	Femoral Head Trial 26mm +6	33	238-4009	Femoral Head Trial 40mm +9
9	238-2609	Femoral Head Trial 26mm +9	34	235-2810	Ceramic Femoral Head Trial 28mm S -5
10	238-2860	Femoral Head Trial 28mm -6	35	235-2812	Ceramic Femoral Head Trial 28mm M -1
11	238-2830	Femoral Head Trial 28mm -3	36	235-2814	Ceramic Femoral Head Trial 28mm L +2
12	238-2800	Femoral Head Trial 28mm +0	37	235-3210	Ceramic Femoral Head Trial 32mm S -5
13	238-2803	Femoral Head Trial 28mm +3	38	235-3212	Ceramic Femoral Head Trial 32mm M -1
14	238-2806	Femoral Head Trial 28mm +6	39	235-3214	Ceramic Femoral Head Trial 32mm L +2
15	238-2809	Femoral Head Trial 28mm +9	40	235-3216	Ceramic Femoral Head Trial 32mm XL +6
16	238-3260	Femoral Head Trial 32mm -6	41	235-3610	Ceramic Femoral Head Trial 36mm S -5
17	238-3230	Femoral Head Trial 32mm -3	42	235-3612	Ceramic Femoral Head Trial 36mm M -1
18	238-3200	Femoral Head Trial 32mm +0	43	235-3614	Ceramic Femoral Head Trial 36mm L +2
19	238-3203	Femoral Head Trial 32mm +3	44	235-3616	Ceramic Femoral Head Trial 36mm XL +6
20	238-3206	Femoral Head Trial 32mm +6	45	235-4010	Ceramic Femoral Head Trial 40mm S -5
21	238-3209	Femoral Head Trial 32mm +9	46	235-4012	Ceramic Femoral Head Trial 40mm M -1
22	238-3660	Femoral Head Trial 36mm -6	47	235-4014	Ceramic Femoral Head Trial 40mm L +2
23	238-3630	Femoral Head Trial 36mm -3	48	235-4016	Ceramic Femoral Head Trial 40mm XL +6
24	238-3600	Femoral Head Trial 36mm +0		238-6000	Femoral Head Trial Case
25	238-3603	Femoral Head Trial 36mm +3			

