

# GLOBAL ICON™

Stemless Shoulder System

Surgical Technique





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# Key Surgical Steps Summary



# Surgical Technique

## Exposure

Please refer to the GLOBAL ENABLE® Glenoid Exposure System Surgical Technique for detailed information regarding humeral and glenoid exposure.

## Humeral Head Resection

The humeral resection may be made through a variety of methods listed below, allowing surgeons to use reference points deemed most appropriate (i.e. humeral canal or anatomic neck). Using a rongeur or other instrument, remove any unwanted osteophytes to return proximal humerus to near native anatomy.

- **Free Hand Resection** – Use an Oscillating Power Saw to remove the humeral head at the anatomic neck, recreating the native humeral version and inclination (Figure 1).
- **Assisted 135 Degree Angle Resection** – Align the shaft of the Celcon Humeral Head Cutting Guide with the shaft of the humerus and adjust the height to properly correspond to the location of the anatomic neck. Mark the desired location and orientation of the cut, and use the mark to assist in the resection of the proximal humerus at 135 degrees (Figure 2).
- **Guided Anatomic Resection** – Use the Alignment Handle to position a Resection Guide (sizes 1 through 11) on the proximal humerus. The ring of the guide should rest on the posterior and superior cuff insertion, and the top of the cutting surface should align with the anatomic neck. Secure the guide using two converging Resection Pins, and use an Oscillating Saw to resect the proximal humerus (Figure 3).



Figure 1



Figure 2



Figure 3

### Glenoid Preparation

Place a Cover Plate on the resected surface, and prepare the glenoid. Caution should be taken while handling the Cover Plate due to sharp spikes on the undersurface. Please refer to the GLOBAL™ APG+ System Surgical Technique for detailed information regarding glenoid preparation.

### Anchor Plate Sizing and Positioning

Use the Alignment Handle to position the best-fit Humeral Prep Guide (sizes 40 through 56) on the resected humeral surface. Caution should be taken while handling the guide due to sharp spikes on the undersurface.

**Note:** The footprint of the guide matches that of the corresponding size Anchor Plate and should provide as much coverage as possible without overhanging the bone. Consideration should be made for the anatomic structures of the proximal humerus, including but not limited to the bicipital groove and the medial inferior neck when assessing leg positions, as the location of the T-slots will determine the location of the final implant's legs (Figure 4).

### Optional Preliminary Trialing

A Humeral Head Trial can be placed on the Humeral Prep Guide at this time to trial the implants before any humeral preparation is performed (Figure 5).

**Note:** The Humeral Head size selected must be equal to or larger than the selected Anchor Plate. The +3 mm Humeral Head is the only exception, as one size smaller can be accommodated by the Anchor Plate.

### Glenoid Sizing

	Heads								
	40	42	44	46	48	50	52	54	56
Glenoids	40								
	44								
	48								
	52								
	56								

The glenohumeral mismatch allowable is 2-12 mm



Figure 4



Figure 5

### Humeral Preparation – Humeral Punch

Secure the Humeral Prep Guide to the resected surface by inserting the Humeral Prep Pins through the Guide's pin holes. Attach the corresponding Humeral Punch to the Impaction Handle, and align the legs of the punch with the T-shaped cutouts in the guide. Use a mallet to impact the handle until the punch is flush with the guide (Figure 6).

**Note:** During humeral punching, verify that proximal bone quality is adequate for a stemless device.

### Humeral Preparation – Central Drill

Connect the Central Drill directly to a rotary power source, and advance it through the Humeral Prep Guide until the depth stop on the drill is flush with the guide (Figure 7).

Remove the guide from the proximal humerus.

### Anchor Plate Implantation

Place the Implant Inserter Outer Handle on the center of the selected definitive Anchor Plate, ensuring that the tabs on the handle extend into the windows of the implant. Thread the Implant Inserter Inner Handle into the Outer Handle, and tighten the Inner Handle to secure the instrument to the implant.

Align the legs of the Anchor Plate with the pathways created by the Humeral Punch. Impact the inserter handle assembly until the underside of the implant makes full contact with the bone (Figure 8). Check and reaffirm flush seating of the implant through the windows and slots on the Anchor Plate. Hold the Implant Outer Handle firmly, and unscrew the Inner Handle to disengage the assembly from the implant.



Figure 6



Figure 7

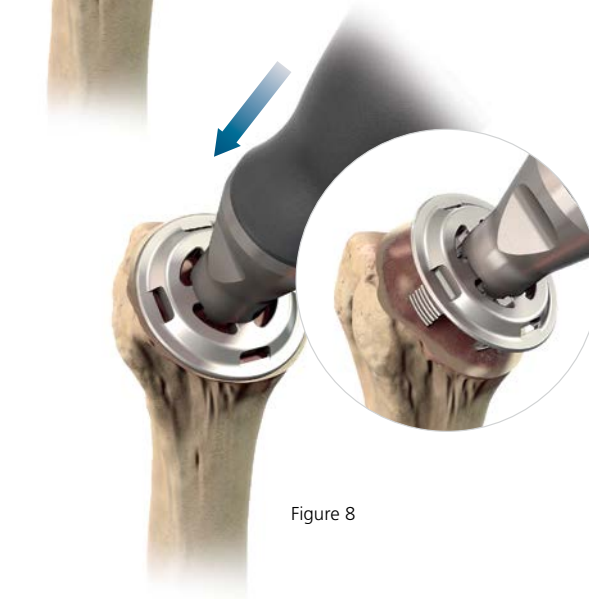


Figure 8



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### Humeral Head Trialing

Place the desired Humeral Head Trial on the Anchor Plate, reduce the joint, and assess range of motion and stability (Figure 9).

**Note:** The Humeral Head size selected must be equal to or larger than the selected Anchor Plate. The +3 mm Humeral Head is the only exception, as one size smaller can be accommodated by the Anchor Plate.

### Humeral Head Implantation

Position the Humeral Head Implant on the Anchor Plate by hand, and press it firmly into place. Attach the Head Impactor Tip to the Impaction Handle. Use a mallet to impact the flange of the handle to set the implant tapers (Figure 10).



Figure 9



Figure 10



# Revision Technique

## Removing the Humeral Head

Attach the appropriate size Humeral Head Removal Fork to the Impaction Handle. Position the fork so that the insides of its prongs are placed between the Humeral Head and the Anchor Plate. Use a mallet to impact the flange of the handle until the Humeral Head has been disassociated from the Anchor Plate (Figure 11).

**Note:** Please use the appropriate sized Humeral Head Removal tool to disengage the Humeral Head Trial, during the trailing process.

## Removing the Anchor Plate

The Anchor Plate contains open windows and slots designed to accept the flat, flexible osteotome blades from DePuy Synthes' Shoulder Extraction Instrument set. This allows the osteotomes to be advanced through the implant in order to break bony connections to the sides of the implant legs as well as the central taper. The underside of the Anchor Plate may also require release, and the straight osteotomes from the Shoulder Extraction Instrument set may be used to break any bony connections (Figure 12).

Once sufficient separation is complete, place the Implant Inserter Outer Handle on the center of the Anchor Plate, ensuring that the tabs on the handle extend into the windows of the implant. Thread the Implant Inserter Inner Handle into the outer handle, and tighten the inner handle to secure the instrument to the implant. Extract the Anchor Plate by using a mallet to impact the underside of the inner handle (Figure 13).

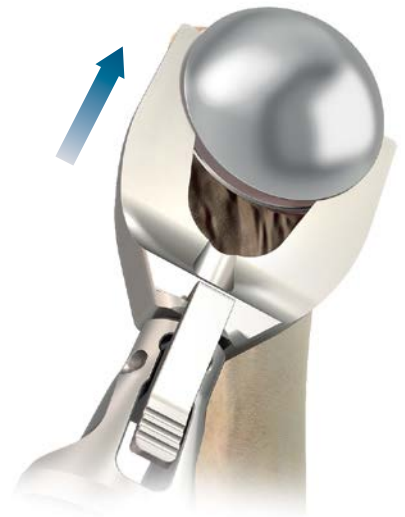


Figure 11



Figure 12

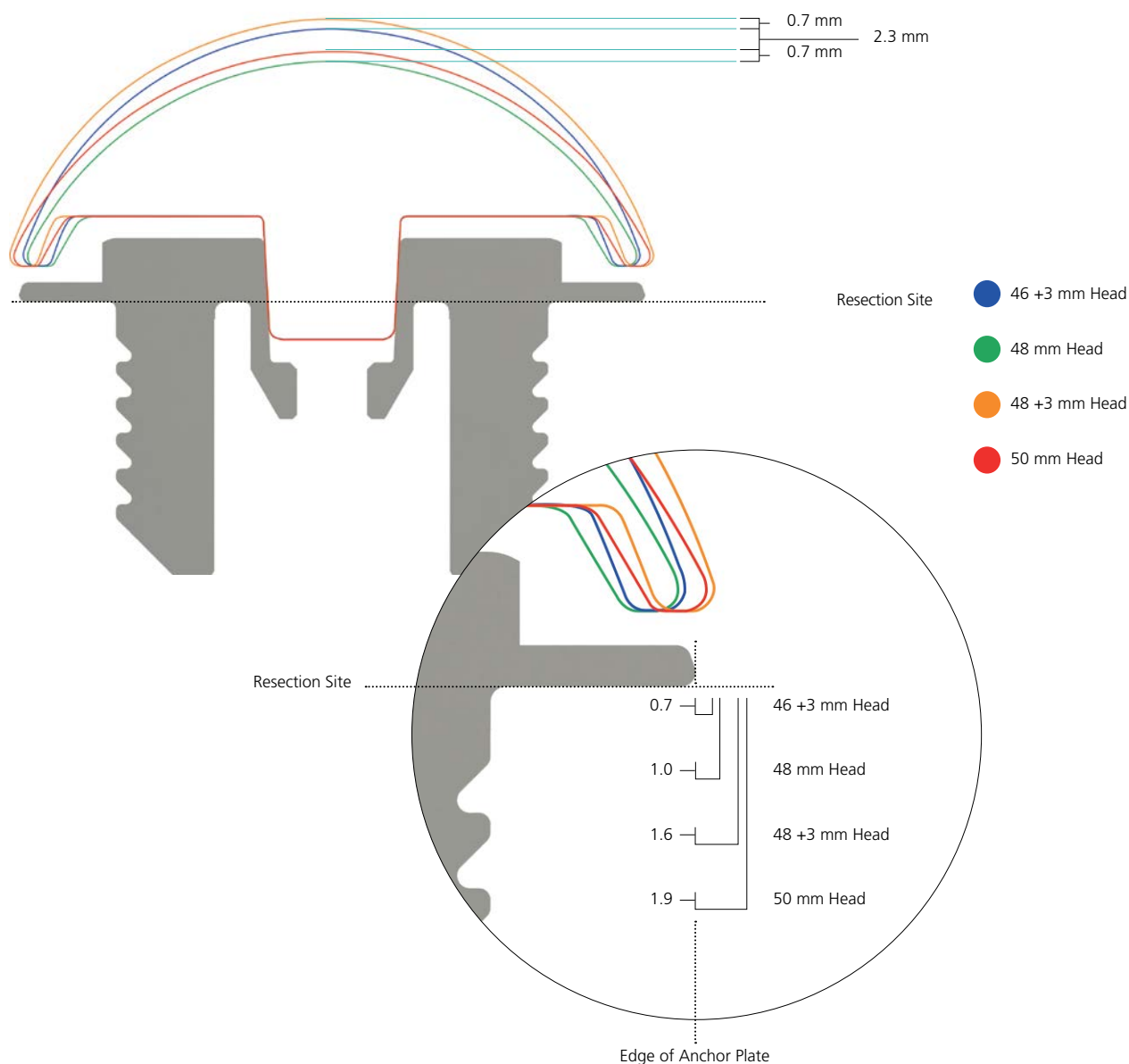


Figure 13

# Humeral Head Size Selection

## Effect of Size Selection on Projected Head Coverage and Height

The Humeral Head size selected must be equal to or larger than the selected Anchor Plate. The +3 mm Humeral Head is the only exception, as one size smaller can be accommodated by the Anchor Plate. This example is for the size 48 Anchor Plate, however, the relative changes shown are consistent to all sizes of the Anchor Plate with equivalent head sizes. The smallest permissible Humeral Head size in this example would be a 46 +3 mm.



# Implant Ordering Information

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## Anchor Plate Implants

1140-10-040	Anchor Plate Size 40
1140-10-042	Anchor Plate Size 42
1140-10-044	Anchor Plate Size 44
1140-10-046	Anchor Plate Size 46
1140-10-048	Anchor Plate Size 48
1140-10-050	Anchor Plate Size 50
1140-10-052	Anchor Plate Size 52
1140-10-054	Anchor Plate Size 54
1140-10-056	Anchor Plate Size 56

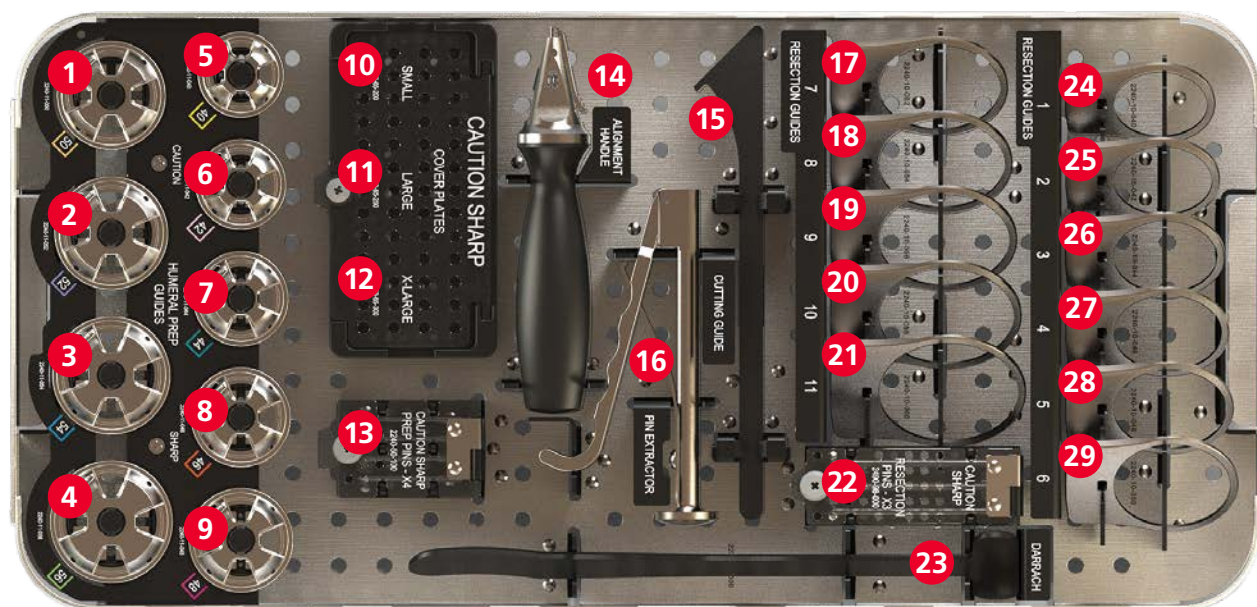
## Humeral Head Implants Anatomic Humeral Heads

1140-20-040	Humeral Head Size 40
1140-20-042	Humeral Head Size 42
1140-20-044	Humeral Head Size 44
1140-20-046	Humeral Head Size 46
1140-20-048	Humeral Head Size 48
1140-20-050	Humeral Head Size 50
1140-20-052	Humeral Head Size 52
1140-20-054	Humeral Head Size 54
1140-20-056	Humeral Head Size 56

## Humeral Head Implants +3 mm Anatomic Humeral Heads

1140-20-340	Humeral Head Size 40 +3 mm
1140-20-342	Humeral Head Size 42 +3 mm
1140-20-344	Humeral Head Size 44 +3 mm
1140-20-346	Humeral Head Size 46 +3 mm
1140-20-348	Humeral Head Size 48 +3 mm
1140-20-350	Humeral Head Size 50 +3 mm
1140-20-352	Humeral Head Size 52 +3 mm
1140-20-354	Humeral Head Size 54 +3 mm
1140-20-356	Humeral Head Size 56 +3 mm

## Instrument Case 1



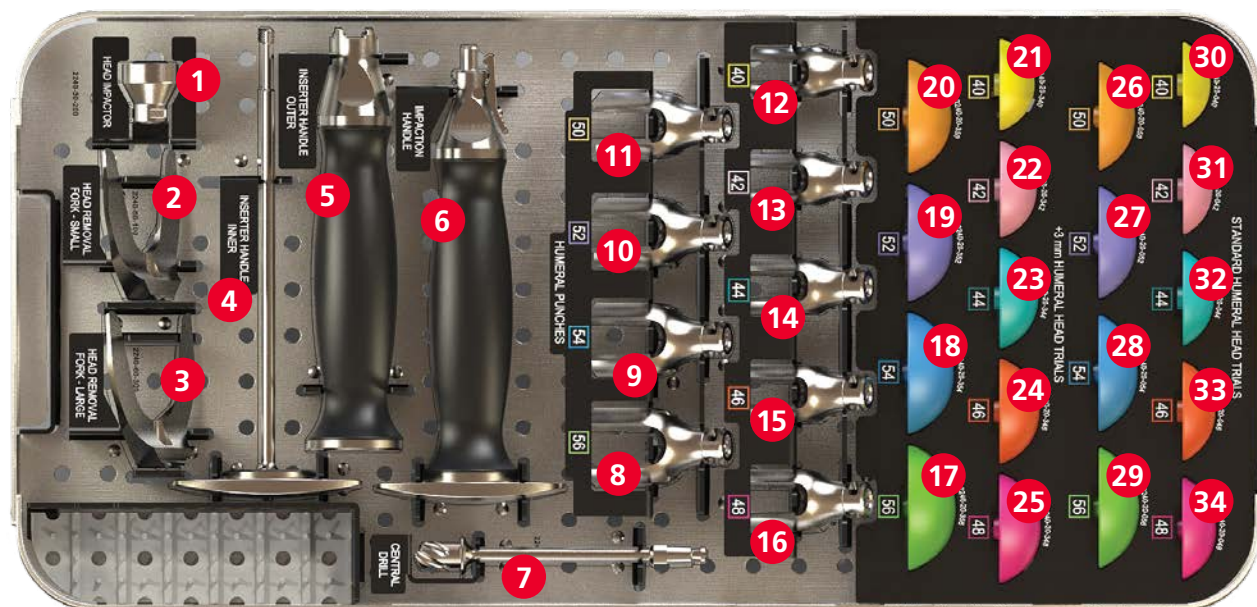
1	2240-11-050	Humeral Prep Guide 50
2	2240-11-052	Humeral Prep Guide 52
3	2240-11-054	Humeral Prep Guide 54
4	2240-11-056	Humeral Prep Guide 56
5	2240-11-040	Humeral Prep Guide 40
6	2240-11-042	Humeral Prep Guide 42
7	2240-11-044	Humeral Prep Guide 44
8	2240-11-046	Humeral Prep Guide 46
9	2240-11-048	Humeral Prep Guide 48
10	2128-65-200	Adv+ Small Cover Plate
11	2128-65-250	Adv+ Large Cover Plate
12	2128-65-300	Adv+ XL Cover Plate
13	2240-50-100	Prep Pins
14	2240-10-100	Alignment Handle
15	2128-61-071	Celcon Humeral Head Cutting Guide

16	2307-99-004	Pin Extractor
17	2240-10-052	Resection Guide 7
18	2240-10-054	Resection Guide 8
19	2240-10-056	Resection Guide 9
20	2240-10-058	Resection Guide 10
21	2240-10-060	Resection Guide 11
22	2490-98-000	Resection Pins (3 per pack)
23	2236-31-000	Darrach Retractor
24	2240-10-040	Resection Guide 1
25	2240-10-042	Resection Guide 2
26	2240-10-044	Resection Guide 3
27	2240-10-046	Resection Guide 4
28	2240-10-048	Resection Guide 5
29	2240-10-050	Resection Guide 6

2240-90-100 Instrument Case 1 Complete

Device Component	Compatible Component
GLOBAL ICON Anchor Plates	GLOBAL ICON Humeral Heads
GLOBAL ICON Humeral Heads	GLOBAL ICON Anchor Plates GLOBAL SHOULDER Peg Glenoid GLOBAL Crosslinked Anchor Peg Glenoid GLOBAL Crosslinked Keeled/Fin Glenoid

## Instrument Case 2



1	2240-30-200	Humeral Head Impactor Tip
2	2240-60-100	Humeral Head Removal Fork Small
3	2240-60-300	Humeral Head Removal Fork Large
4	2240-30-150	Inserter Inner Handle
5	2240-30-100	Inserter Outer Handle
6	2240-10-200	Impaction Handle
7	2240-20-150	Central Drill (11.3 mm)
8	2240-13-056	Humeral Punch 56
9	2240-13-054	Humeral Punch 54
10	2240-13-052	Humeral Punch 52
11	2240-13-050	Humeral Punch 50
12	2240-13-040	Humeral Punch 40
13	2240-13-042	Humeral Punch 42
14	2240-13-044	Humeral Punch 44
15	2240-13-046	Humeral Punch 46
16	2240-13-048	Humeral Punch 48
17	2240-20-356	Humeral Head Trial 56 +3 mm
18	2240-20-354	Humeral Head Trial 54 +3 mm
19	2240-20-352	Humeral Head Trial 52 +3 mm
20	2240-20-350	Humeral Head Trial 50 +3 mm
21	2240-20-340	Humeral Head Trial 40 +3 mm

22	2240-20-342	Humeral Head Trial 42 +3 mm
23	2240-20-344	Humeral Head Trial 44 +3 mm
24	2240-20-346	Humeral Head Trial 46 +3 mm
25	2240-20-348	Humeral Head Trial 48 +3 mm
26	2240-20-050	Humeral Head Trial 50
27	2240-20-052	Humeral Head Trial 52
28	2240-20-054	Humeral Head Trial 54
29	2240-20-056	Humeral Head Trial 56
30	2240-20-040	Humeral Head Trial 40
31	2240-20-042	Humeral Head Trial 42
32	2240-20-044	Humeral Head Trial 44
33	2240-20-046	Humeral Head Trial 46
34	2240-20-048	Humeral Head Trial 48
	2140-10-048	Anchor Plate Size 48 DNI
	2140-20-048	Humeral Head Size 48 DNI
	2140-20-050	Humeral Head Size 50 DNI
	2140-20-346	Humeral Head Size 46 +3 DNI
	2140-20-348	Humeral Head Size 48 +3 DNI
	2240-80-800	X-Ray Templates

2240-90-200 Instrument Case 2 Complete

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