

Integra®

Titan™ Modular Shoulder System, 2.5

Limit uncertainty with a shoulder implant system that redefines modularity, addresses multiple indications, and allows for reproducible results.



INTEGRA®
LIMIT UNCERTAINTY

Design Rationale

The Titan™ Modular Total Shoulder System offers a bone preserving option for patients needing total or hemi shoulder arthroplasty. The modularity of the system allows the surgeon to independently select distal stems and proximal bodies that best match patient anatomy and bone quality utilizing diaphyseal fixation and without the need for cement.

The system is fully interchangeable – allowing all primary and fracture bodies to be used with either press-fit or cemented stems and later converted to a reverse shoulder arthroplasty without removing a well-fixed stem. Modularity between the body and stem allows for the version to be altered during conversion.



- **Interchangeable proximal bodies and distal stems** to accommodate varying patient anatomy
- **Multiple fixation options** (press-fit vs cemented) to address varying bone quality
- Well-fixed stem provides an intraoperative **building platform and a pathway for revision**

System Features

- Convertability from TSA to RSA with version adjustment
- Press-fit modular stem design
- Anatomic head sizing
- Bone-preserving modular primary and fracture bodies

Redefining Modularity

- 26 Humeral Head Options
- 8 Primary Body Options
- 3 Fracture Body Options
- 11 Press-fit Stems
- 11 Cemented Stems
- 8 Glenoid Options



Humeral Stems

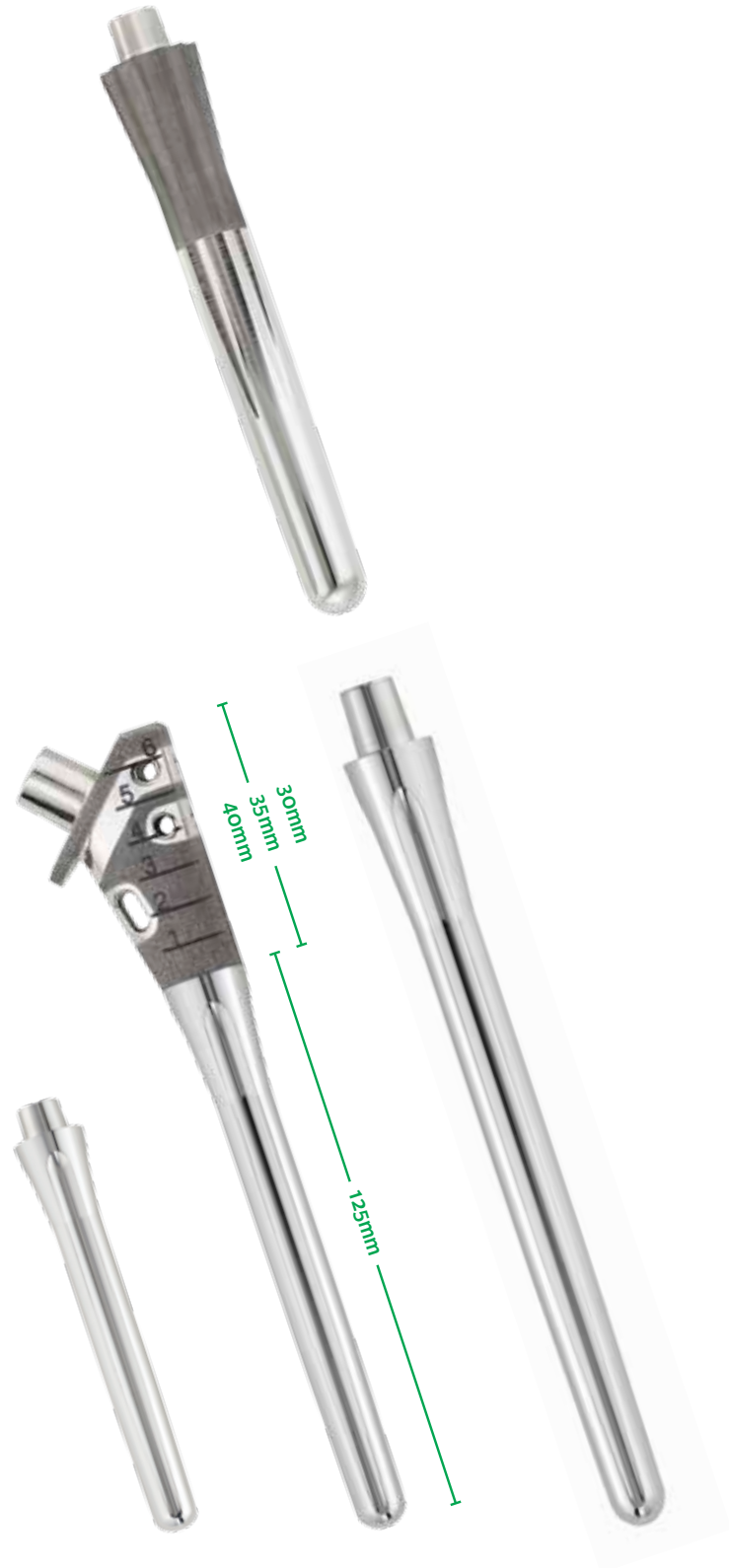
The Titan™ Modular Total Shoulder System offers press-fit and cemented stem humeral fixation options. The Compression sounding, platform based system simplifies the conversion process from a Hemi, to a Total, to a Reverse and back to a Hemi without removing a well-fixed stem. The version can be altered during a conversion from total shoulder to reverse shoulder prosthesis.

Press-Fit Stem Options

- Eliminates the need to remove cement in case of revision
- 90mm lengths, 11 diameters (6-16mm), increasing in 1mm increments for precise distal fixation
- 12 splines on each stem contribute to an enhanced press-fit fixation and minimize rotation
- Height sustaining trials do not require outriggers or jigs to assess height or trial reduction

Cemented Stem Options

- Smooth, fluted stem allows for optimal cement fixation and rotational control
- 90mm length, 5 stem diameters, ranging from 6-14mm, to address varying humerus sizes
- 125mm and 165mm length cemented long stem options (lengths exclude the height of the proximal body)
- Tapered, polished distal stem for ease of insertion
- Total construct lengths available from 120mm - 205mm



Proximal Humeral Bodies

The Titan™ Modular Total Shoulder System provides multiple body heights and diameters to address varying patient anatomy in total shoulder arthroplasty, as well as hemiarthroplasty for proximal humeral fracture procedures. The system's modularity below the anatomic neck allows for:

- Intraoperative metaphyseal height manipulation which simplifies restoring the humeral head-to-tuberosity relationship
- Version adjustment when converting to a reverse shoulder arthroplasty, without having to remove the well-fixed stem

Primary Humeral Body

- 135° neck angle
- 8 body options, providing multiple heights (30-40mm) and diameters (8-14mm)
- Modularity allows for intraoperative height adjustment
- Grit-blast surface promotes initial and long-term bone fixation
- Tuberosity height reference guide in 5mm increments



Fracture Body Options

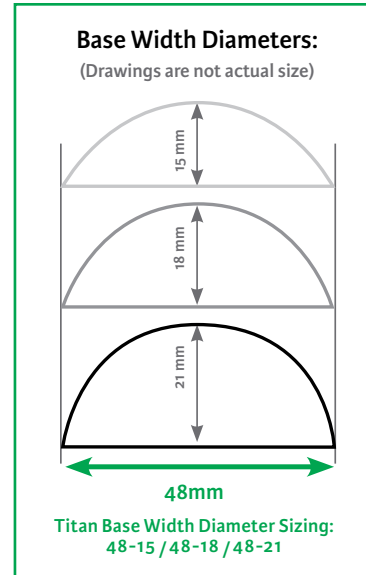
- 3 height options (30mm, 35mm, and 40mm), in 8mm diameter
- Polished medial and lateral suture holes for added bone and soft tissue fixation and minimal suture abrasion
- Medial collar allows for body circumferential suture placement
- No jig or outrigger required simplifies trialing process and humeral head to tuberosity height restoration



Anatomic Humeral Heads

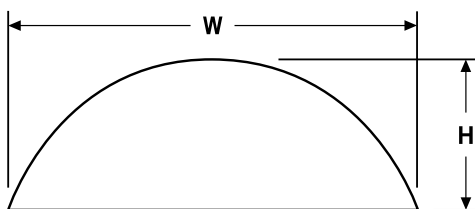
Titan™ Humeral Head sizing is based on published anthropomorphic data of over 300 human humeri to provide anatomic fit by respecting the varying radius of curvature which allows for simplified sizing and soft tissue balancing.^{1,2}

- 26 eccentric & concentric humeral heads in various heights
- Optimal osteotomy coverage and soft tissue balancing



*Humeral Head Anatomic Dimensional Range

W \ H	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
32	0.64	0.72	0.80	0.87	0.94	1.00	1.06	1.12	1.17	1.22	1.27	1.31	1.35	1.38	1.42
33	0.62	0.69	0.77	0.84	0.90	0.97	1.03	1.09	1.14	1.19	1.24	1.28	1.32	1.36	1.39
34	0.59	0.67	0.74	0.81	0.88	0.94	1.00	1.06	1.11	1.16	1.21	1.25	1.29	1.33	1.37
35	0.57	0.64	0.71	0.78	0.85	0.91	0.97	1.03	1.08	1.13	1.18	1.22	1.27	1.31	1.34
36	0.54	0.62	0.69	0.75	0.82	0.88	0.94	1.00	1.05	1.10	1.15	1.20	1.24	1.28	1.32
37	0.52	0.59	0.66	0.73	0.79	0.86	0.92	0.97	1.03	1.08	1.13	1.17	1.21	1.25	1.29
38	0.50	0.57	0.64	0.70	0.77	0.83	0.89	0.95	1.00	1.05	1.10	1.15	1.19	1.23	1.27
39	0.48	0.55	0.62	0.68	0.74	0.80	0.86	0.92	0.97	1.03	1.07	1.12	1.16	1.20	1.24
40	0.46	0.53	0.59	0.66	0.72	0.78	0.84	0.90	0.95	1.00	1.05	1.10	1.14	1.18	1.22
41	0.45	0.51	0.57	0.64	0.70	0.76	0.81	0.87	0.92	0.98	1.02	1.07	1.11	1.16	1.20
42	0.43	0.49	0.55	0.62	0.68	0.73	0.79	0.85	0.90	0.95	1.00	1.05	1.09	1.13	1.17
43	0.41	0.48	0.54	0.60	0.65	0.71	0.77	0.82	0.88	0.93	0.98	1.02	1.07	1.11	1.15
44	0.40	0.46	0.52	0.58	0.63	0.69	0.75	0.80	0.85	0.90	0.95	1.00	1.04	1.09	1.13
45	0.39	0.44	0.50	0.56	0.62	0.67	0.73	0.78	0.83	0.88	0.93	0.98	1.02	1.06	1.10
46	0.37	0.43	0.48	0.54	0.60	0.65	0.71	0.76	0.81	0.86	0.91	0.96	1.00	1.04	1.08
47	0.36	0.41	0.47	0.52	0.58	0.63	0.69	0.74	0.79	0.84	0.89	0.93	0.98	1.02	1.06
48	0.35	0.40	0.45	0.51	0.56	0.62	0.67	0.72	0.77	0.82	0.87	0.91	0.96	1.00	1.04
49	0.34	0.39	0.44	0.49	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.89	0.94	0.98	1.02
50	0.32	0.37	0.43	0.48	0.53	0.58	0.63	0.68	0.73	0.78	0.83	0.87	0.92	0.96	1.00
51	0.31	0.36	0.41	0.46	0.51	0.56	0.62	0.67	0.71	0.76	0.81	0.85	0.90	0.94	0.98
52	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.74	0.79	0.83	0.88	0.92	0.96
53	0.29	0.34	0.39	0.44	0.49	0.53	0.58	0.63	0.68	0.73	0.77	0.82	0.86	0.90	0.94
54	0.28	0.33	0.38	0.42	0.47	0.52	0.57	0.62	0.66	0.71	0.75	0.80	0.84	0.88	0.92
55	0.28	0.32	0.37	0.41	0.46	0.51	0.55	0.60	0.65	0.69	0.74	0.78	0.82	0.86	0.90
56	0.27	0.31	0.35	0.40	0.45	0.49	0.54	0.58	0.63	0.68	0.72	0.76	0.81	0.85	0.89
57	0.26	0.30	0.34	0.39	0.43	0.48	0.52	0.57	0.62	0.66	0.70	0.75	0.79	0.83	0.87
58	0.25	0.29	0.33	0.38	0.42	0.47	0.51	0.56	0.60	0.64	0.69	0.73	0.77	0.81	0.85



*In each cell above are H/R values. Numbers highlighted in light green represent the combined data of Iannotti and Hertel. Numbers highlighted in dark green represent Titan implant sizes.

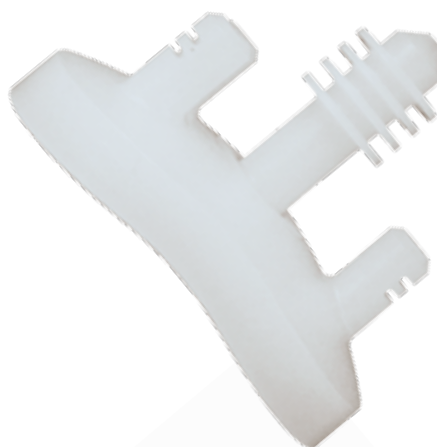
¹ Iannotti JP, Gabriel JP, Schneck SL, et al: The normal glenohumeral relationships. An anatomical study of one hundred and forty shoulders. J Bone Joint Surg (Am), 1992; 74:491-500.
² Williams GR and Iannotti JP: Anatomy and biomechanics of the glenohumeral joint related to shoulder arthroplasty, Seminars in Arthroplasty, Vol 11, No 1 (January): pp 2-15.

Glenoid Options

The Titan™ Modular Total Shoulder System offers multiple glenoid options for patients needing total shoulder replacement; incorporating a flexible Glenohumeral diametric mismatch between 4-8mm.

Fin-Lock Glenoid

- Fluted central peg to help enhance initial and secondary fixation



Pegged Glenoid

- In-line peg design for ease of insertion
- Grooved central peg allows for optimal cement fixation



Keeled Glenoid

- Addresses patients with poor glenoid bone quality
- Grooves and hole allow for enhanced cement fixation



Indications

Total Shoulder Arthroplasty or Hemiarthroplasty is indicated for:

- Severely painful and/or disabled joint resulting from osteoarthritis, traumatic arthritis or rheumatoid arthritis
- Fracture-dislocations of the proximal humerus where the articular surface is severely comminuted, separated from its blood supply or where the surgeon's experience indicates that alternative methods of treatment are unsatisfactory
- Other difficult clinical problems where shoulder arthrodesis or resection arthroplasty are not acceptable (e.g. – revision of a failed primary component)

Shoulder Hemiarthroplasty is also indicated for:

- Ununited humeral head fractures
- Avascular necrosis of the humeral head
- Rotator cuff arthropathy
- Deformity and/or limited motion

The humeral component is intended for cemented or un-cemented use. The glenoid component is intended for cemented use only.

Contraindications

The following conditions are contraindications for total shoulder arthroplasty and hemiarthroplasty:

- Active local or systemic infection
- Inadequate bone stock in the proximal humerus or glenoid fossa for supporting the components.
- Poor bone quality, such as osteoporosis, where there could be considerable migration of the prosthesis and/or a chance of fracture of the humerus or glenoid
- Pregnancy
- Muscular, neurologic, or vascular deficiencies that compromise the affected extremity
- Known metal allergies

The following condition is a contraindication for total shoulder arthroplasty:

- Absent, irreparable or nonfunctional rotator cuff or other essential muscles

Availability of these products might vary from a given country or region to another, as a result of specific local regulatory approval or clearance requirements for sale in such country or region.

- Always refer to the appropriate instructions for use for complete clinical instructions.
- Non contractual document. The manufacturer reserves the right, without prior notice, to modify the products in order to improve their quality.
- Warning: Applicable laws restrict these products to sale by or on the order of a physician.

For more information or to place an order, please contact:

United States, Canada, Asia, Pacific, Latin America

USA 800-654-2873 ▪ 888-980-7742 fax
International +1 609-936-5400 ▪ +1 609-750-4259 fax
integralife.com/contact

Manufacturer:



Ascension Orthopedics, Inc.
8700 Cameron Road, Suite 100
Austin, TX 78754
Phone: 512-852-3900 ▪ Fax: 512-836-6933