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mindray
healthcare within reach

# Hip&Knee Solutions

mindray

The hip joint series

## Ceramic Femoral Head

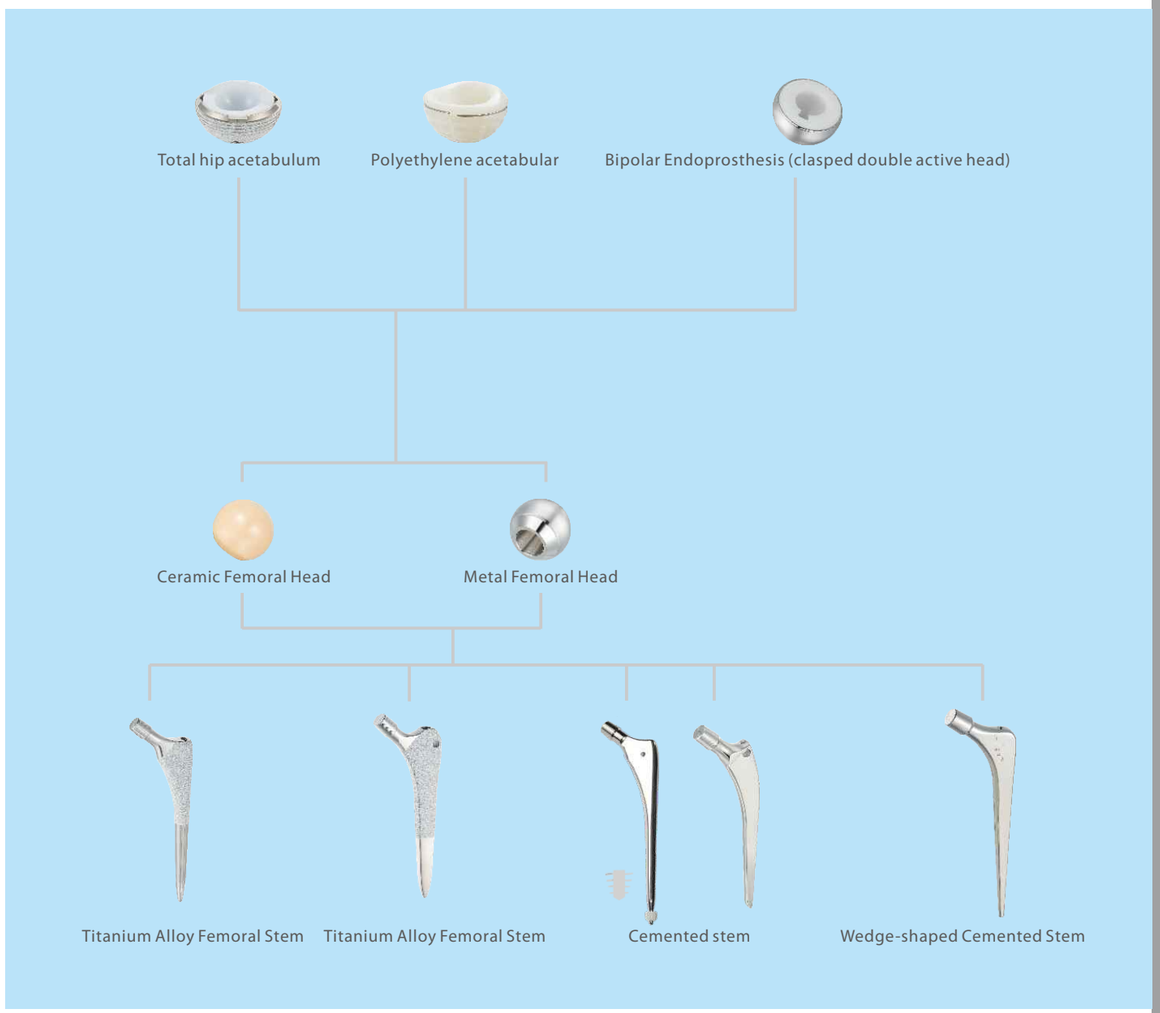
- Solid, preeminent wear resistance
- Excellent wettability and lubrication
- Excellent biocompatibility, lowest tissue reaction by ceramic particles, effectively reduce the wear debris and osteolysis
- Strong corrosion resistance, stable performance
- No metal ions released in the human body
- No adverse tissue reaction, no allergic reaction

| Name | Material | Size |
|---|---|---|
| Ceramic Femoral Head | High purity alumina based ceramics | 28S |
| | | 28M |
| | | 28L |

## Three outstanding advantages of ceramic joint:

Super wear resistance, excellent biocompatibility, super smooth surface processing

- The first registered enterprise of ceramic hip joint in China
- imported ultra-high molecular weight polyethylene and high purity alumina based ceramics
- precision manufacturing by International advanced processing equipment, surfacing by vacuum plasma spraying technology
- Professional surgical instruments ensure operation quality and postoperative recovery








## Metal Femoral Head

- Precision machining with cobalt chromium molybdenum alloy materials
- head surface mirror polished, high hardness, low wear, improve the life of the prosthesis;
- The inner cone adopts international universal 12/14 standard self-locking design, firmly combined with prosthesis stem.
- The narrow ring in basal part of neck section reduces the barrier between the neck and acetabulum, expand the activity range of the hip joint, and reduce incidence of dislocation
- Variety of specifications meets clinical requirement

| Name | Material | Size |
|---|---|---|
| Metal Femoral Head | Cobalt chromium molybdenum alloy | 24S |
| | | 24M |
| | | 24L |
| | | 28S |
| | | 28M |
| | | 28L |
| | | 28XL |

## Unipolar Endoprosthesis(hemi hip active head)

- Specialized femoral stem prosthesis for total hip replacement
- Processed with cobalt chromium molybdenum alloy bar, ball head surfacing polish, reducing the interface wear
- The inner cone adopts international universal 12/14 standard self-locking design, firmly combined with prosthesis stem.
- Variety of specifications meets clinical requirement

| Name | Material | Size |
|---|---|---|
| Unipolar Endoprosthesis (hemi hip active head) | Cobalt chromium molybdenum alloy | 38 |
| | | 40 |
| | | 42 |
| | | 44 |
| | | 46 |
| | | 48 |
| | | 50 |
| | | 52 |
| | | 54 |

## Bipolar Endoprosthesis (clasped double active head)

- Double interface rotation, increase the activity of prosthesis
- Clamping ring locking structure, convenient installation and extraction of inner lining

| Name | Material | Size |
|---|---|---|
| Bipolar Endoprosthesis (clasped double active head) | Stainless Steel + UHMWPE (ultra high molecular weight polyethylene) | 38/24 |
| | | 40/24 |
| | | 42/24 |
| | | 44/24 |
| | | 46/28 |
| | | 48/28 |
| | | 50/28 |
| | | 52/28 |
| | | 54/28 |
| | | 56/28 |

## Polyethylene acetabular

- The groove of the outer spherical surface increases the contact of prosthesis and bone cement, and effectively enhances the stability of the prosthesis
- Bulged platform in the top ensures uniformity and identity of distribution of cement layer.
- High edge anti dislocation design, with the development of medical stainless steel wire positioning

| Name | Material | Size |
|---|---|---|
| Polyethylene acetabular | Stainless Steel + UHMWPE (ultra high molecular weight polyethylene) | 42/28 |
| | | 44/28 |
| | | 46/28 |
| | | 48/28 |
| | | 50/28 |
| | | 52/28 |
| | | 54/28 |
| | | 56/28 |

## Total hip acetabulum

- Porous surfacing technology with hydroxyapatite coating, improve biocompatibility of the prosthesis and effectively induce bone ingrowth
- 3 screw holes on the surface of acetabulum, variaty selection for screw fixation
- Cone pressure locking design, CAM technology and advanced processing technology ensure the stability of the inner lining
- Multi position adjustment of high edge anti dislocation of acetabular lining

| Name | Material | Size |
|---|---|---|
| Total hip acetabulum | Cobalt chromium molybdenum alloy + UHMWPE (ultra high molecular weight polyethylene) | 42/24 |
| | | 44/24 |
| | | 46/24 |
| | | 48/28 |
| | | 50/28 |
| | | 52/28 |
| | | 54/28 |
| | | 56/28 |
| | | 58/28 |
| | | 60/28 |





## Titanium Alloy Femoral Stem

- Force line of prosthesis stem and the anatomic axis of femoral medullary cavity perfectly match
- No collar design
- A variety of models, domestic human bone coverage rate reach 95%
- The proximal three-dimensional wedge section structure ensures the maximal matching of proximal joint prosthesis and medullary cavity
- The proximal end of the coronal plane, sagittal plane and transverse section are designed in wedge shape, offering to the prosthesis excellent anti sinking and anti rotation performance, ensuring the early stability
- three-dimensional wedge shape design, making the stress evenly transmitted to the proximal end of the diaphysis, to avoid stress concentration
- The design of single arc in the proximal end, take full advantage of the arch design philosophy of the bridge, enhance the bearing capacity of the proximal end of prosthesis. The length of the stem is designed into sthmian of the medullary cavity, to enhance the media-distal fixation.
- High polished collar area, minimize the impact wear
- The ideal micro porous surface of proximal prosthesis, pore diameter 100-300 micron, provides good biological fixation interface and reliable long-term fixation effect
- HA prosthesis sprayed hydroxyapatite coating, improve the biocompatibility of the prosthesis and effectively induce bone ingrowth

| Name | Material | Size | Distal long | long |
|---|---|---|---|---|
| Titanium Alloy Femoral Stem | Titanium Alloy | 01 | 7 | 129 |
| | | 0 | 8 | 133 |
| | | 1 | 9 | 137 |
| | | 2 | 10 | 141 |
| | | 3 | 11 | 145 |
| | | 4 | 12 | 149 |
| | | 5 | 13 | 153 |
| | | 6 | 14 | 158 |

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- The design of single arc in the proximal end, take full advantage of the arch design philosophy of the bridge, enhance the bearing capacity of the proximal end of prosthesis. The length of the stem is designed into sthmian of the medullary cavity, to enhance the media-distal fixation.
- High polished and bullet head design in distal end, significant reduce the stress shielding after prosthesis implantation
- High polished collar area, minimize the impact wear
- The ideal micro porous surface of proximal prosthesis, pore diameter 100-300 micron, provides good biological fixation interface and reliable long-term fixation effect
- HA prosthesis sprayed hydroxyapatite coating, improve the biocompatibility of the prosthesis and effectively induce bone ingrowth

| Name | Material | Size | Distal long | long |
|---|---|---|---|---|
| Titanium Alloy Femoral Stem | Titanium Alloy | 1 | 6 | 140 |
| | | 2 | 7 | 145 |
| | | 3 | 8 | 151 |
| | | 4 | 9 | 156 |
| | | 5 | 10 | 162 |
| | | 6 | 11 | 167 |
| | | 7 | 12 | 173 |





## Cemented stem

- The design of prosthesis based on the latest bone cement technology, equiped with distal plug
- Processed with cobalt chromium molybdenum alloy, surfacing mirror polish, minimize the interface wear between prosthesis and bone cement
- Distal part is equiped with a central device, ensure the prosthesis is in the center of the medullary cavity, and the bone cement is uniformly distributed around the prosthesis
- The design of double wedge in proximal transverse section, perfectly match the proximal medullary cavity, make the stress transmit to the diaphysis, and provide good anti rotation performace

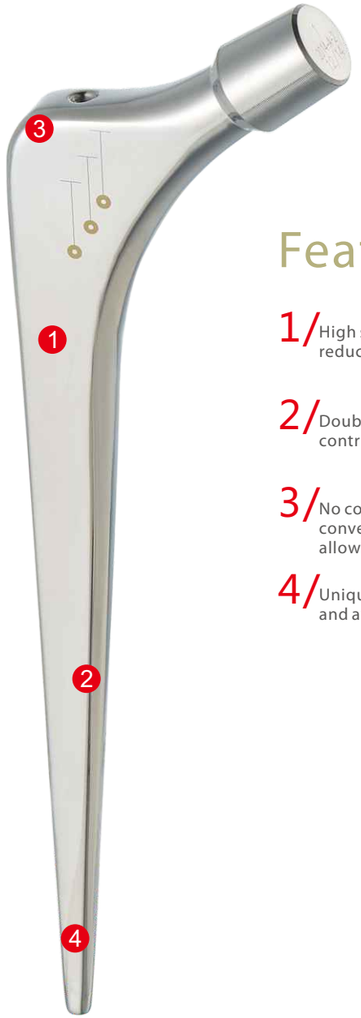
| Name | Material | Size | Distal long | long |
|---|---|---|---|---|
| Cemented stem | Cobalt chromium molybdenum alloy | 0 | 5 | 135 |
| | | 1 | 5.5 | 140 |
| | | 2 | 6 | 145 |
| | | 3 | 6.5 | 150 |
| | | 4 | 7 | 155 |

## Cemented stem

- Collar design
- Double wedge design, conform to femoral medullary cavity
- High surface polished, reduced friction coefficient and reduced bone cement grinding
- Automatic centering arc structure, no need to install distal center device
- Multiple sizes, greatly meet the clinical requirements

| Name | Material | Size | Distal long | long |
|---|---|---|---|---|
| Cemented stem | Cobalt chromium molybdenum alloy | 0 | 5.5 | 136.5 |
| | | 1 | 6.5 | 137 |
| | | 2 | 7.5 | 138 |
| | | 3 | 8.5 | 138.5 |
| | | 4 | 9 | 139 |

## Wedge-shaped Cemented Stem




## Features

1/ High surface polished,
reduced friction coefficient and reduced bone cement grinding

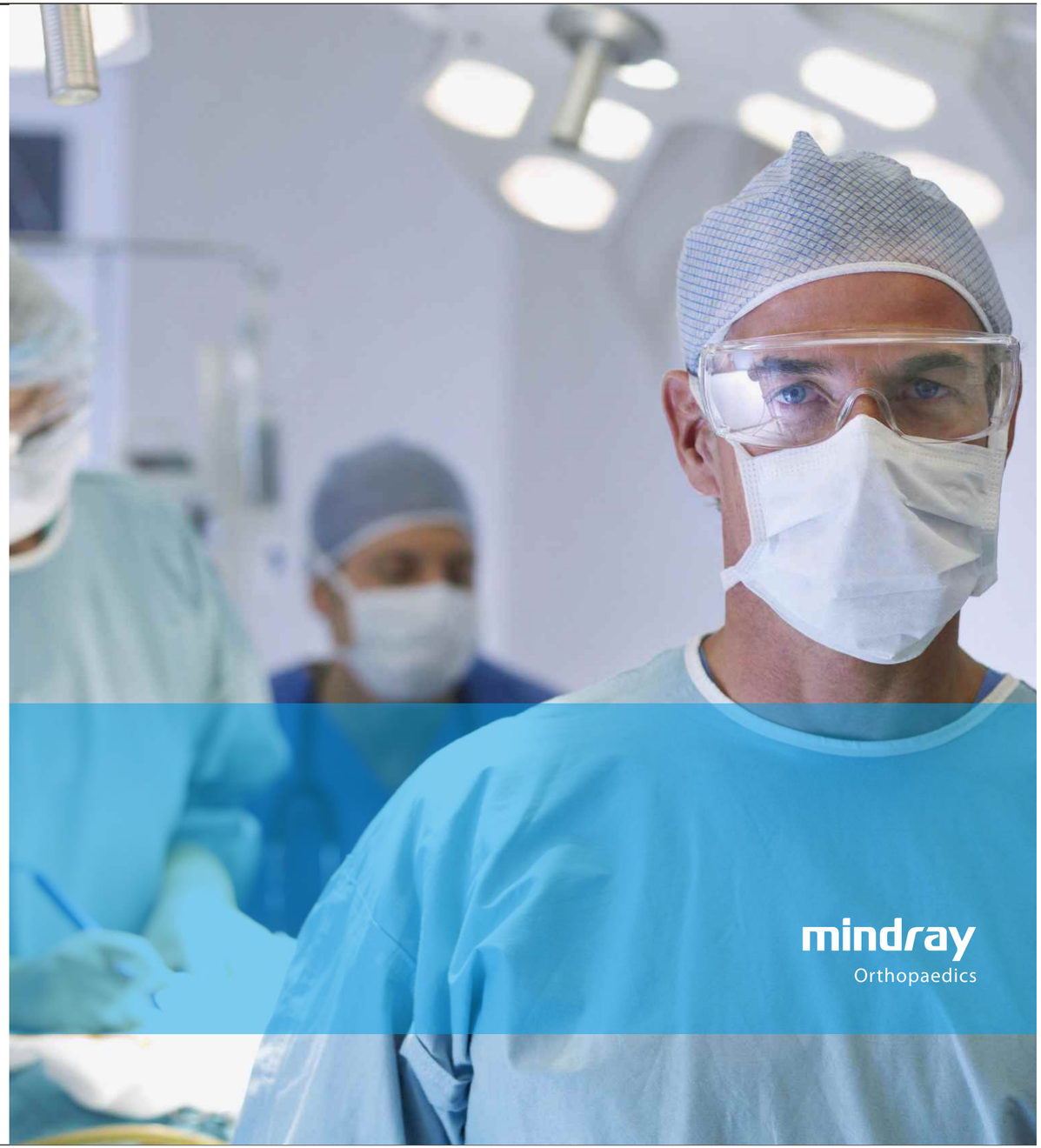
2/ Double wedge stem design,
contribute to the transmission and dispersion of stress

3/ No collar design,
convenient to adjust the position of the stem during operation,
allowing further sinking to achieve excellent fixation by strength limit

4/ Unique central device design, ensure uniform coverage of bone cement,
and avoid direct contact between distal end of the stem and bone cement



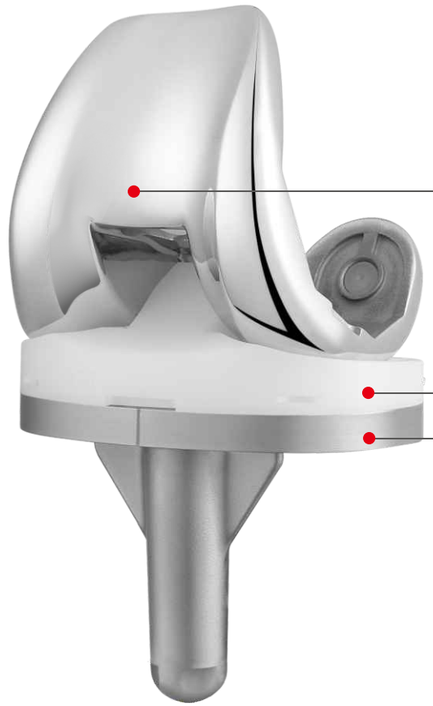
The hip joint series



# High function anatomical fixed bearing prosthesis

## Characteristics of femoral condyle component

- CoCrMo material
- Highly polishing design on the surface, decrease the wear of meniscus component to make it work longer
- Excellent materials and precision machining, ensure reliability and stability of prosthesis, low wear;
- Anatomical design, accommodate Asian Human Bones
- Enhanced compatibility of femoral prosthesis, closer to the human knee joint trajectory
- the deeper, wider and smoother trochlear groove design, ensure smooth transition with condylar, and optimize patellar trajectory
- Round edge to avoid soft tissue strike and patella snap
- 5°elevation in anterior condyle, 1°obliquity in posterior condyle, increase the surgery safety.
- smooth edge, reduce chance of soft tissues impact and patellar snapping
- multiple sizes for selection•




## Characteristics of tibial plateau component

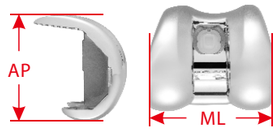
- The tibial plateau component fully encompassed design, with a reliable locking mechanism to meniscus prosthesis, minimizes micromotion and wear
- Deep design on the tray allows thicker meniscus component
- the three-wing design of the tibial plateau, provide excellent stability and anti rotation ability, and offer better support to the plateau
- Improved slot for bone cement guarantee the thickness and increase stability

## Characteristics of Meniscus prosthesis

- Ultrahigh molecular weight polyethylene, moderately crosslinked, widely match with distinct femoral condyle prosthesis
- back fixed pad, optimized intercondylar bulge, strengthen Knee Joint stability
- meniscus and femoral condyle highly matched, uniform stress distribution, lower wear, provides comprehensive stability. At the same time, reduce the influence on joint activity.
- Cutting design in the front, protect the soft tissue and avoid damaging patellar ligament.

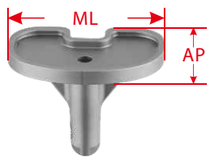






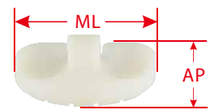

### Femoral condyle component specification

| Model | F1 | F2 | F3 | F4 | F5 |
|---|---|---|---|---|---|
| AP(mm) | 53 | 56 | 59 | 61 | 65 |
| ML(mm) | 57 | 60 | 63 | 66 | 71 |




### Tibial plateau component specification

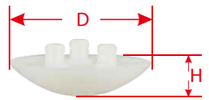
| Model | T0 | T1 | T1+ | T2+ | T3+ |
|---|---|---|---|---|---|
| AP(mm) | 41 | 43 | 45 | 47 | 51 |
| ML(mm) | 61 | 64 | 67 | 71 | 76 |




### Meniscus prosthesis specification

| Model | T0 | T1 | T1+ | T2+ | T3+ |
|---|---|---|---|---|---|
| AP(mm) | 41 | 43 | 45 | 47 | 51 |
| ML(mm) | 61 | 64 | 66 | 71 | 76 |
| H(mm) | 8、10、12.5、15 | | | | |

Meniscus Component size is same as Tibia Component




### Patellar component specification

| Name | Patellar component | | |
|---|---|---|---|
| D(mm) | 32 | 35 | 38 |
| H(mm) | 8 | 8.5 | 9 |

### Component Selection

Femoral Component ML/AP

| Tibial Inserts ML/AP | F1 57/53 | F2 60/56 | F3 63/59 | F4 66/61 | F5 71/65 |
|---|---|---|---|---|---|
| T0 60/41 | | | | | |
| T1 61/43 | | | | | |
| T1+ 66/45 | | | | | |
| T2+ 71/47 | | | | | |
| T3+ 76/51 | | | | | |

Notes



Notes