Aesculap® EnduRo

Rotating Hinge Knee Endoprosthesis

Aesculap Orthopaedics

B BRAUN
SHARING EXPERTISE

Aesculap® EnduRo

Safely on the move

Safely on the move.

The EnduRo knee system is the most recent development at Aesculap and incorporates our vast experience in the field.

Revision surgery today already accounts for roughly 15 percent of surgical interventions in knee endoprosthetics. This percentage is growing rapidly, and even more so the absolute numbers. At the same time, multiple replacements are also increasing. More and more primary implantations are being carried out on younger patients at a time when life expectancy in general is growing. For this reason, there is inevitably a steadily increasing number of patients who require a third or fourth endoprosthesis during lifetime. In these situations, an implant linked to a rotating hinge is usually the treatment of choice. However, this type of prosthesis was fraught with unresolved problems until now, due mainly to abrasive wear in the bush bearing and a geometric design which deviates significantly from physiological requirements. Both of these factors can lead to premature loosening and implant failure.

The EnduRo knee revision system is based on new concepts for bio-mechanical materials which practically eliminate the mechanisms that might cause failure. These novel materials are the prerequisite for increasing the service life of rotational hinge implants to that of established primary condylar implants.

Endurance = Stability

Rotation = Quality of Life

EnduRo

Security and quality of life for patients

Cruciate ligament	*ACT*	*HTO*	*Unicondylar*	*Bicondylar*	*Non-hinged revision*	*Hinged revision*

COMPLETE PORTFOLIO FOR TREATMENT OF KNEE DEFECTS

Aesculap® EnduRo

Safely on the move

Linkage with a difference

- Security against dislocation – conical junction with additional securing nut
- Rotational axis with 3 mm lift
- PE gliding surfaces from 10 mm to 24 mm
- 6 patellae to choose from:
  Ø 26 x 7 mm, Ø 29 x 8 mm, Ø 32 x 9 mm,
  Ø 35 x 10 mm, Ø 38 x 11 mm, Ø 41 x 12 mm

Anatomic adaptation

- 3 sizes right/left
- Uniformly small box
- Spherical radius
- Femoral offset AP,
  +/- 2 mm
- Hyperextension 3°
  limited by design of
  femur and PE
- Femoral augments
  distal: 4, 8 and 12 mm
  posterior distal:
  4 x 4 mm, 4 x 8 mm, 4 x 12 mm,
  8 x 4 mm, 8 x 8 mm, 8 x 12 mm,
  12 x 4 mm, 12 x 8 mm, 12 x 12 mm
- Femoral offset stems
  cemented (6°): lengths 77 and 157 mm
  Ø 12 mm, 15 mm and 18 mm
  cementless (5°/7°): lengths 117 and 177 mm
  Ø 12, 13, 14, 15, 16, 17, 18, 19 and 20 mm

Indications:
Severe knee joint disorders which cannot be treated by other therapies:

Degenerative arthrosis	Symptomatic knee ligament instability
Rheumatoid arthritis	Knee-joint ankylosis
Posttraumatic arthrosis	Severe knee-joint deformities
	Revision/Replacement operations

EnduRo

Security and quality of life for patients

- Tibial offset ML up to +/- 6 mm
- Symmetric tibial component
  3 sizes, rotation ± 12°
- Tibial augments, 4, 8, 12 and 16 mm
- Tibial offset stems
  cementless:
  lengths 92 and 172 mm
  Ø 11, 12, 13, 14, ... 20 mm,
  cemented:
  lengths 52 and 92 mm
  Ø 12, 15 and 18 mm

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Security and quality of life for patients

Security and quality of life for patients.

Mobility

12° rotation on the vertical axis possible – in both medial and lateral direction. At least 140° flexion angle, which is increased still further by the sophisticated 3 mm lift technology. Up to 3° hyperextension possible, securely limited by innovative interaction of femur and PE gliding surface design.

Security against dislocation

The cone-shaped rotational axis, which is secured in the tibial plateau, is joined to the inner cone of the femoral hinge ring. In addition, a securing nut is affixed which is embedded harmoniously in the design of the hinge ring.

Longevity

A prolonged implant service life is to be expected thanks to the use of time-tested CoCrMo for the metal components, combined with innovative, carbon fibre-reinforced PEEK as bearing material for the axle bearings. The comprehensive implant portfolio provides PE gliding surfaces as well as wedges of varying heights for femur and tibia. Additionally, cementless and cemented extension stems of varying diameters and lengths as well as offset options for femoral and tibial shafts provide well adapted anatomic adjustment for your patient.

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Security and quality of life for patients

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Safely on the move

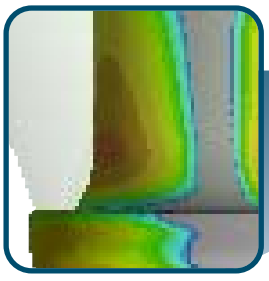
High tech – the Aesculap OrthoPilot®.

Figures that create confidence: more than 125 000 knee endoprostheses were implanted successfully in the last 15 years using the CT-free navigation system OrthoPilot®.

In future, it will also be possible to implant the linked EnduRo endoprosthesis using cutting-edge equipment from Aesculap.

Innovative. Allergy solution.

The EnduRo knee endoprostheses with AS (Advanced Surface) coating are special implants that offer an innovative and safe solution for patients showing allergic reactions to metals such as nickel, cobalt and chromium. The multi-layer coating reliably prevents the release of metal ions, and there is no danger of mechanical chipping.



More reliable design.

Long years of experience combined with innovative technology mean that we can actually produce a perfect implant design during the construction phase.

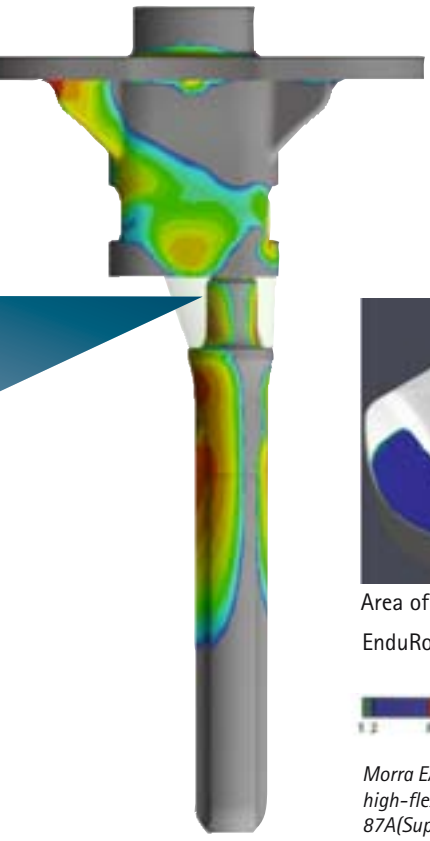
Safe from dislocation

EnduRo

Longevity

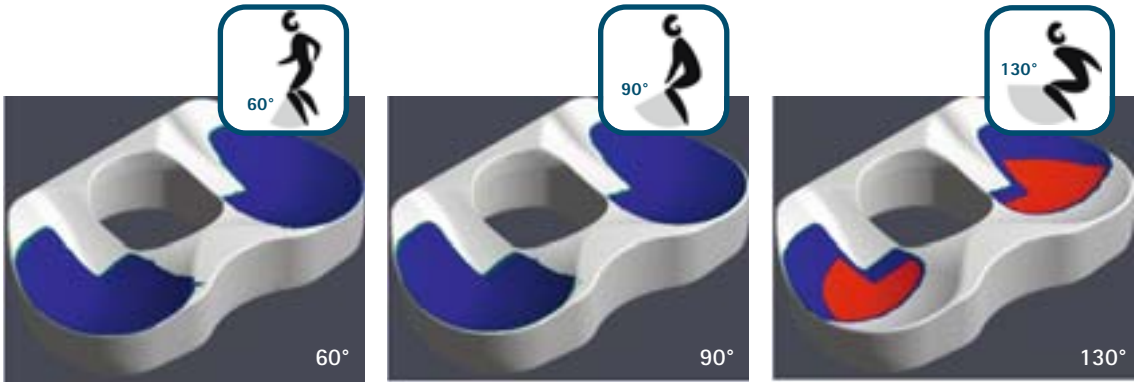
EnduRo

Mobility



Longevity thanks to excellent wear characteristics:
2.4 mm³/million cycles ISO 14243-1

McNamara JL, Collier JP, Mayor MB, Jensen RE. A comparison of contact pressures in tibial and patellar total knee components before and after service in vivo. Clin Orthop Rel Res. 1994;299:104-13.



Area of contact: 1050 mm²

Area of contact: 1046 mm²

Area of contact: 683 mm²

EnduRo offers approximately 3 times the area of contact compared to other modern high-flex knee systems.

Morra EA, Greenwald AS. Polymer insert stress in total knee designs during high-flexion activities – a Finite Element Study. J Bone Joint Surg Am 2005; 87A(Suppl2):119-24.

Critical limit: 21 MPa

Stein HL. Ultrahigh molecular weight polyethylenes. Engineering Materials Handbook, Vol. 2, Park City, USA, ASM International Metals, 1988; pp.161-71.

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