Intelligent hip surgery is an approach to patient treatment that places equal importance on:

- Optimising function
- Maximising survivorship
- Accelerating recovery

Its success is founded on leadership in the development of:

- High performance bearings
- Clinically proven implants
- Responsible and effective MI techniques
“In use worldwide; FDA approved in 1996; recognised Level 10A in 2004 by the Orthopaedic Data Evaluation Panel in the UK: the Corail® stem has now become a gold standard among primary stems. The Corail® stem’s philosophy is based on simple principles: primary mechanical stability, secondary biological integration, bone preservation and harmonious stress transfer. The design, unchanged since 1986, gives the primary mechanical stability. The hydroxyapatite coating allows secondary biological integration. The combination of the design and the HA coating of the Corail® stem has proven to work perfectly.\textsuperscript{1,2,3} The surgical technique is simple and allows bone preservation as we are looking for an “optimum filling” and not a close cortical contact with the implant. The restoration of bone stock occurs with the creation of newly formed bone all around the stem thanks to the effect of both the design and the hydroxyapatite. The compaction broaching surgical technique is reproducible and straightforward. We do not see any long-term radiographic changes.”

ARTRO Group
Corail® Design Surgeon Team
Clinique d’Argonay
International Visitation Centre Corail®
Annecy, France
After twelve years of constant pain, Johan was unable to sleep through the night and facing the fact that he could no longer run his business as before, Johan's quality of life at 44 years old was extremely poor. Life was no longer fun. Now, just seven months after his Corail® Hip surgery, he is back enjoying life with friends, skiing and ice climbing.
CLINICALLY PROVEN HIP

95.1%
Survivorship in 5,130 cases* at 15 years. The Norwegian Arthroplasty Register 1987-2004, 2005

98.3%
Survivorship in 2,956 cases at 10 and 14 years. Vidalain J P. Artro Group., 1998

98.9%
Survivorship in 100 consecutive cases at 8 years. Røkkum M., J. Bone and Joint Surg., 1999

* Cohort size on Norwegian Hip Arthroplasty Register.
Pre-operative planning
The Corail® Hip System provides pre-operative templates at three different magnifications (100%, 115% and 120%). These are placed over the A/P and M/L radiographs to help determine the implant size in order to restore the patient’s natural anatomy. The objective is not for the implant to fill the femur in close cortical contact, but to sit the stem in the compacted cancellous bone. There should be at least a 1 mm distance between the stem and the cortical bone. The pre-operative templating will also indicate the level of neck resection.

Surgical approach
The Corail® stem can be used with any surgical approach using a conventional or a reduced incision.
FEMORAL NECK RESECTION

The angle of resection should be 45°. The neck resection guide should be used to determine the level of the femoral neck resection in conjunction with pre-operative templating. If the resection is too high, it may result in a varus positioned stem. Note: the osteotomy can be performed in one or two planes depending on the surgeon's preference.
Enter the femoral canal as laterally as possible with a chisel to avoid varus positioning. Use the bone tamp to compact the cancellous bone proximally. This is an important step as the philosophy of the Corail® stem is based on bone preservation. Please refer to the Pinnacle™ Surgical Technique for full details with regards to the acetabulum preparation (cat no: 9068-80-050).
Begin with the smallest broach attached to the broach handle and increase the size of broach one at a time until axial and rotational stability is achieved. Stop broaching when it is felt that the broach is stable longitudinally and rotationally. Careful pre-operative planning is key to help selection of the final broach size. Anteversion is automatically set during the broaching with the flared broaches.
Leave the last broach in place and use the calcar mill to achieve a flat resection surface. If a collared stem is used, the calcar reaming should allow an optimised fit of the collar on the calcar.
With the last broach in situ, attach the appropriate trial neck and trial head. Reduce the hip and assess what adjustments, if any, are required to ensure stability through a full range of motion. Remove the femoral head, neck trial and broach. Do not irrigate or dry the femoral canal. This will help to preserve the compacted cancellous bone quality and encourage osteointegration of the stem.
Engage the Corail® stem (that has the same size as the last used broach) in the femoral canal by hand and finish its introduction with the impactor for the last few centimetres.

Note: The stem is 0.31 mm thicker than the broach to allow the necessary press-fit.
Once the Corail® stem is seated, cancellous bone from the resected femoral head is added around the proximal part of the stem using the bone tamp to seal the femoral canal and to reduce the time for osteointegration which provides definitive stability.
Clean the stem taper carefully to remove any particulate debris. Place the femoral head onto the taper and lightly tap it (especially if a ceramic head is used) using the head impactor. Ensure bearing surfaces are clean, and finally reduce the hip.
ORDERING INFORMATION

Corail® Implants
All the Corail® stems have the Articul/eze™ neck, characterised by a thin antero-posterior dimension, a polished surface and a 12/14 mini-taper.

<table>
<thead>
<tr>
<th>Size</th>
<th>Stem Length (mm) (A)</th>
<th>Stem Length (mm) (B)</th>
<th>Offset (mm) (C)</th>
<th>Neck Length (mm) (D)</th>
<th>Neck Shaft Angle (E)</th>
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Note: All measurements are based on a 28 mm +5.0 Articul/eze® head, which is the middle length of non-skirted femoral heads.
Corail® Instrumentation

CONTK2 Sterilisation Case

L20500 Base Aluminium Basket

9653-68-000 Anteverison Axis

L20440 Neck Resection Guide

L93606 Bone Tamp

L93205 Bone Impactor

2002-31-000 Osteotome

9522-11-500 Curved Broach Handle

9522-10-500F Straight Broach Handle

9522-12-500F Extra Curved Broach Handle

L20504 Top Basket

L20503 Superior Thermoformed Tray
L20502 Middle Thermoformed Tray

L20408 Broach 8
L20409 Broach 9
L20410 Broach 10
L20411 Broach 11
L20412 Broach 12
L20413 Broach 13
L20414 Broach 14
L20415 Broach 15
L20416 Broach 16
L20418 Broach 18
L20420 Broach 20

L20431 Standard Neck Segment

L20432 Laterised Neck Segment (Coxa Vara)

L20433 High Offset Neck Segment

L20501 Inferior Thermoformed Tray

2570-04-200 Calcar Mill Large
2570-04-100 Calcar Mill Small

2570-05-000 Positioner

2570-05-100 Stem Impactor

2001-65-000 Head Impactor

Pre-operative Templates

Pre-operative Templates (100%)
CALQ861 Corail® Standard (28 mm, 32 mm, 36 mm, ASR™ XL Heads)
CALQ862 Corail® Coxa Vara (28 mm, 32 mm, 36 mm, ASR™ XL Heads)
CALQ863 Corail® High Offset (28 mm, 32 mm, 36 mm, ASR™ XL Heads)

Pre-operative Templates (120%)
CALQ864 Corail® Standard (28 mm, 32 mm, 36 mm, ASR™ XL Heads)
CALQ865 Corail® Coxa Vara (28 mm, 32 mm, 36 mm, ASR™ XL Heads)
CALQ866 Corail® High Offset (28 mm, 32 mm, 36 mm, ASR™ XL Heads)

Pre-operative Templates (115%)
CALQ858 Corail® Standard (28 mm, 32 mm, 36 mm, ASR™ XL Heads)
CALQ859 Corail® Coxa Vara (28 mm, 32 mm, 36 mm, ASR™ XL Heads)
CALQ860 Corail® High Offset (28 mm, 32 mm, 36 mm, ASR™ XL Heads)

Digital Templates
The availability of digital templates depends on DePuy International’s agreement with the vendors. Please contact DePuy International for more information.
References:

