



CONTOUR[◇] Acetabular Rings

Surgical technique completed
in conjunction with

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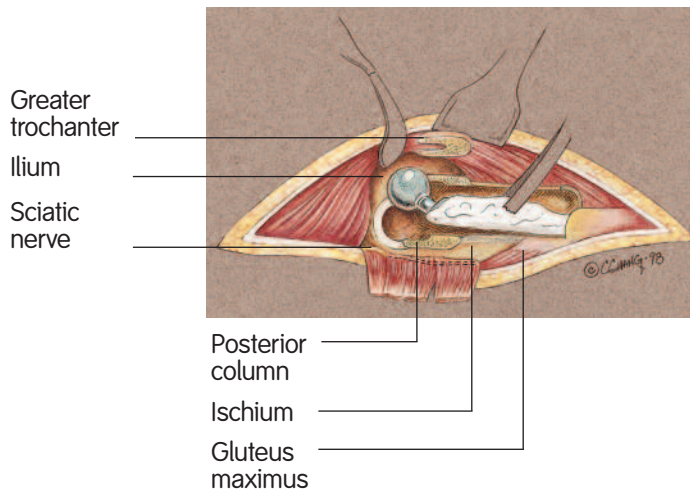
CONTOUR Acetabular Rings can prove to be a most viable surgical solution for acetabular defects in primary and revision procedures. Used in conjunction with allograft bone, the CONTOUR design protects the graft while providing a stable base of fixation for the cement and the polyethylene cup. In addition, CONTOUR Acetabular Rings allow proper anatomical positioning of the polyethylene socket independent of the metal ring.

Please see the Package Insert for a complete list of indications, contraindications, warnings, precautions, and other important medical information.

Nota Bene

The technique description herein is made available to the healthcare professional to illustrate the authors' suggested treatment for the uncomplicated procedure. In the final analysis, the preferred treatment is that which addresses the needs of the patient.

Positioning of the patient



In primary cases, the patient may be positioned either supine or in the lateral decubitus position. All revisions are done with the patient in the lateral decubitus position.

Surgical exposure

For primary implantation of the Reinforcement ring, the exposure is the same as for a primary total hip replacement.

The CONTOUR[®] Acetabular Reconstruction ring requires a more extensive exposure because access must be gained from superoposteriorly down the posterior column to the ischium. Posterior column defects require structural grafting more often than anterior column defects. Exposure of this magnitude necessitates a trochanteric osteotomy, but it is our experience that an anterior trochanteric slide, rather than a transverse trochanteric osteotomy, is sufficient and provides a more stable fixation of the greater trochanter after the surgery.

Preparation of the acetabulum

The previous implant must be removed without causing any further bone loss. Once the implant is removed, all cement and membrane must be carefully extracted. Great care should be exercised in removing intrapelvic cement. A CT-scan combined with dye supplement to visualize the great vessels and the ureter may be required. In the absence of infection, cement may be left in its intrapelvic position and allograft is then interposed between the cement and the CONTOUR[®] Reconstruction Ring.

It is extremely important to define completely the entire circumference of the acetabulum to be able to define a defect as contained or uncontained. If acetabular reamers are used, the outer diameter of the implant should match or be 2mm larger than the final reamer.

Preparation and implantation of the bone graft

Medial wall defects, particularly if extensive, are covered with cancellous allograft slices prepared from femoral heads. The remainder of the defects are filled with morsellized allograft bone. The morsellized bone should be small chunks instead of a slurry of bone which would make impaction impossible. In the case of uncontained segmental acetabular defects, bulk allograft must be used. Although it is preferable to use true acetabular allograft bone, some defects can be managed with male femoral heads.

Morsellized allograft bone is used to fill cavitory defects. It is firmly impacted with smooth acetabular impaction domes. Reverse seat reamers can also be used, but these do not provide the same degree of impaction. Major medial wall deficiencies should be managed with slices of allograft to provide containment of the morsellized allograft bone used to fill the remainder of the defect. This prevents the morsellized allograft bone from being impacted into the pelvis.



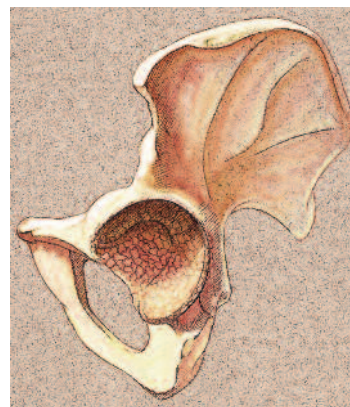
Contained cavity defect



Morsellized allograft bone impacted into cavity defect



Global contained cavity defect including medial wall



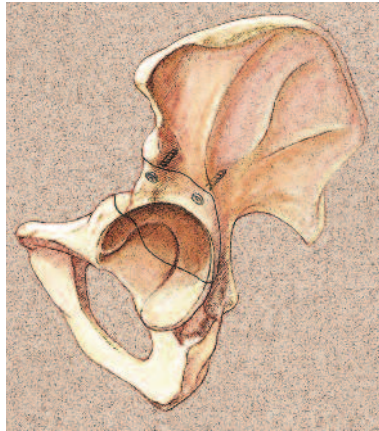
Morsellized allograft bone impacted into global cavitory defect

Preparation and implantation of the bone graft

If there is a major segmental defect, this must be defined accurately by clearing all soft tissue from the acetabular boundaries. Once the defect is defined, the structural allograft is sculpted to fit the defect and then held with two cancellous screws. The most common reconstruction involves the posterior column. In this case, the screws are usually directed superiorly into the dome. Structural allograft is often combined with morsellized allograft that is used to fill adjacent cavitory defects.



Major column defect



Restoration of bone stock by major column allograft

Reinforcement ring surgical technique

Indications for the CONTOUR[®] Reinforcement Ring

The CONTOUR Reinforcement Ring is used where the bone deficits are such that the surgeon can still get adequate support for the ring superoposteriorly and inferomedially against the host bone.

The indications for this device are:

1. Primary hip replacement
 - Severe osteoporosis
 - Large acetabular erosions or cysts
 - Mild to moderate protrusio where the ring can still be seated superoposteriorly and inferomedially against host bone
2. Revision arthroplasty of the hip
 - Contained cavitory defects in conjunction with morsellized allograft bone
 - For small segmental rim defects that do not involve the columns but may require a small structural graft that can be protected by the ring

Contraindications for CONTOUR Reinforcement Ring

1. Major segmental defects involving the dome or posterior column
2. Medial wall segmental defects
3. Any bone defect that involves more than 50% of the acetabulum (contained or uncontained)

It is extremely important that the Reinforcement ring is supported by host bone along its rim superoposteriorly and inferomedially. It must be seated firmly against bone with no toggling. **If the ring is supported primarily against morsellized allograft bone, the device will obtain anchorage only superoposteriorly and will fail because of the hinge-like forces that will be placed upon it.**

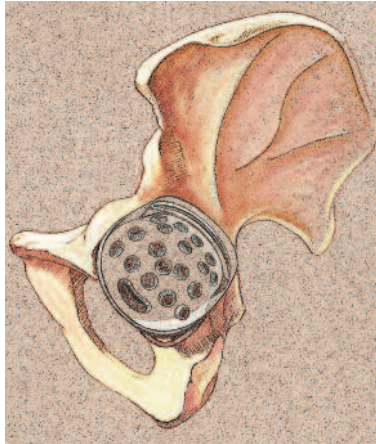


Reinforcement ring surgical technique

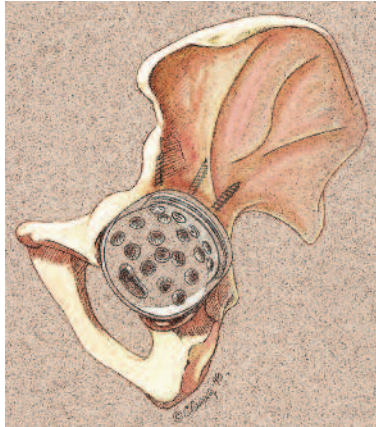
CONTOUR® Reinforcement Ring insertion

The CONTOUR Reinforcement Ring is fitted superiorly against the superior rim of the acetabulum, posteriorly against the posterior wall and column, and inferomedially against the floor of the acetabulum. The ring must have good purchase and support superiorly and posteriorly and it must rest inferomedially against host bone and not on morsellized allograft bone. It must have a firm seat and must not have any potential for toggling. The CONTOUR Reinforcement Ring has a threaded center hole for the threaded cup positioner.

The reinforcement ring is secured with screws that are directed into the dome of the acetabulum. It is best to start with a central screw which forces the ring upwards and medially in line with the resultant forces and in about 15-20° to the vertical axis of the body. At least three screws should be inserted into this area of the dome. Screws can be inserted along the rim if necessary but must have the same direction as those entering the plane more centrally. Screws should not be directed anteriorly or medially because of the danger of penetration into the pelvis and risk to vital structures.



Reinforcement ring insertion



Acetabular screw alignment



Acetabular screw alignment A-P view

Reconstruction ring surgical technique

Indications for the CONTOUR[®] Reconstruction Ring

The CONTOUR Reconstruction Ring can be used as long as there is support superoposteriorly against the ilium and inferiorly against the ischium.

1. Large cavitory defects involving all quadrants of the acetabulum. This device is used in conjunction with morsellized allograft bone. The ring is screwed to the ilium and the dome, and must be supported by the posterior column and the ischium.
2. Medial wall segmental defects where this device can be used in conjunction with cancellous allograft slices and morsellized bone.
3. Segmental defects that involve anterior or posterior column and involve more than 50% of the acetabulum. The device is used in conjunction with a solid acetabular allograft.
4. Pelvic discontinuity may occur if there is a discontinuity of both columns or a massive global bone defect involving both columns. The pelvic discontinuity is stabilized by the ring being fixed by screws to both the ilium and ischium. The bone deficiency is replaced with a structural graft (usually replacing the posterior column). The graft is fixed superiorly to the ilium, and if possible, inferiorly to the ischium with 6.5mm cancellous screws before application of the ring.



CONTOUR[◇] Reconstruction Ring insertion

The CONTOUR Reconstruction Ring is stabilized superoposteriorly by at least three screws in the superior flanges or through the ring into the dome. It should be buttressed against the posterior column, the inferior rim of the acetabulum, and the ischium, before screw insertion.

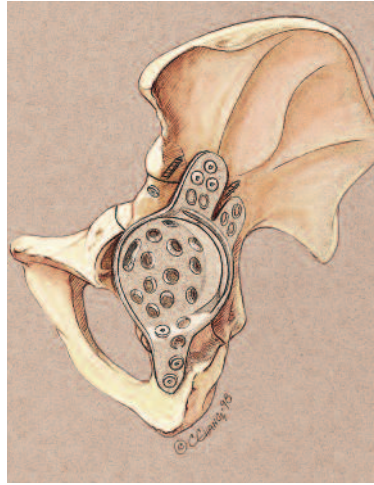
If a structural bulk allograft is being used, it is important to use screws in both the superior and inferior flanges to stabilize the ring and bridge the allograft. If it is impossible to gain good purchase of the screws in the inferior flange sitting on the ischium, it can be used as a buttress against the ischium or slotted into the ischium.

As an alternative, the inferior flange can be buttressed against the ischium with a screw being placed through the ring adjacent to the flange and into the body of the ischium.

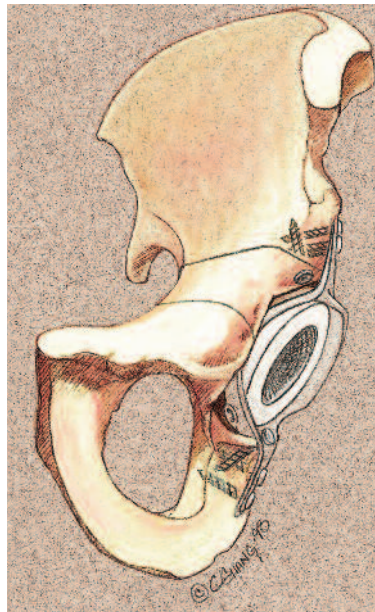
If there is a pelvic discontinuity, the inferior flange should be screwed to the ischium. If there is no pelvic discontinuity, the inferior flange can be slotted into or buttressed against the ischium without screws.

Screws passing through the ring can also be used to add to the fixation of the solid allograft, but great care must be exercised so that the screws do not penetrate anteriorly or medially.

It is important to contour this device very closely to the bone before placing the screws. **If the device is not contoured, tightening the screws either superiorly or inferiorly causes the device to lift off the bone.**



Reconstruction ring fixed to ilium and ischium



Reconstruction ring with all-poly cup
A-P view

The ring must not be inserted too vertically or the inferior rim will impinge on the neck of the femoral component, producing instability or loosening.

In summary, if the CONTOUR[®] Reconstruction Ring is used to reconstruct cavitory defects where stability of the ring can be gained against the ilium and dome superiorly and the posterior wall and column, then inferiorly, it is enough to buttress the ring against the inferior acetabular remnant or the ischium. If it is used in conjunction with a structural acetabular allograft or in the presence of a pelvic discontinuity, the inferior flange should be fixed to the ischium by screws or slotted into the ischium. If possible, at least three screws should be used in the superior and one or two screws through the inferior flanges.

Reconstruction ring surgical technique

Cementing the polyethylene cup

The polyethylene cup is oriented relative to the pelvis and the long axis of the patient. Do not reference the position of the ring when determining the proper position of the polyethylene socket. Select the polyethylene socket size that corresponds to, or is 2mm smaller than, the inner diameter size of the metal ring.



Global
contained
cavitary defect



Catalog information

CONTOUR® implants

CONTOUR Reinforcement Ring – Implants

Implant Cat No	OD	ID
7133-7044	44	40
7133-7047	47	43
7133-7050	50	46
7133-7053	53	49
7133-7056	56	52
7133-7059	59	55
7133-7062	62	58
7133-7065	65	61
7133-7068	68	64



CONTOUR Reconstruction Ring – Implants

Implant Cat No	OD	ID	Side
7133-7150	50	46	Left
7133-7156	56	52	Left
7133-7162	62	58	Left
7133-7168	68	64	Left
7133-7174	74	70	Left
7133-7250	50	46	Right
7133-7256	56	52	Right
7133-7262	62	58	Right
7133-7268	68	64	Right
7133-7274	74	70	Right



REFLECTION® Spherical Head Screws 6.5mm

Cat No	Length
7133-2515	15mm
7133-2520	20mm
7133-2525	25mm
7133-2530	30mm
7133-2535	35mm
7133-2540	40mm
7133-2545	45mm
7133-2550	50mm
7133-2560	60mm
7133-2570	70mm



Catalog information

REFLECTION[®] Cemented All Poly Cup implants

REFLECTION Cemented All Poly Cup

All Poly PE	All Poly XLPE	OD	ID
7135-2240	7135-8001	40 mm	22 mm
7135-2243	7135-8002	43 mm	22 mm
7135-2246	7135-8003	46 mm	22 mm
7135-2249	7135-8004	49 mm	22 mm
7135-2252	7135-8005	52 mm	22 mm
7135-2255	7135-8006	55 mm	22 mm
7135-2258	7135-8007	58 mm	22 mm
7135-2261	7135-8008	61 mm	22 mm
7135-2846	7135-8023	46 mm	28 mm
7135-2849	7135-8024	49 mm	28 mm
7135-2852	7135-8025	52 mm	28 mm
7135-2855	7135-8026	55 mm	28 mm
7135-2858	7135-8027	58 mm	28 mm
7135-2861	7135-8028	61 mm	28 mm
N/A	7135-8029	64 mm	28 mm
7135-3249	7135-8034	49 mm	32 mm
7135-3252	7135-8035	52 mm	32 mm
7135-3255	7135-8036	55 mm	32 mm
7135-3258	7135-8037	58 mm	32 mm
7135-3261	7135-8038	61 mm	32 mm
N/A	7135-8039	64 mm	32 mm
N/A	7135-8065	52 mm	36 mm
N/A	7135-8066	55 mm	36 mm
N/A	7135-8067	58 mm	36 mm
N/A	7135-8068	61 mm	36 mm
N/A	7135-8069	64 mm	36 mm



Catalog information

CONTOUR® trials

CONTOUR Reinforcement Ring – Trials

Trial Cat No	OD	ID
7136-7044	44	40
7136-7047	47	43
7136-7050	50	46
7136-7053	53	49
7136-7056	56	52
7136-7059	59	55
7136-7062	62	58
7136-7065	65	61
7136-7068	68	64

CONTOUR Reconstruction Ring – Trials

Trial Cat No	OD	ID	Side
7136-7150	50	46	Left
7136-7156	56	52	Left
7136-7162	62	58	Left
7136-7168	68	64	Left
7136-7174	74	70	Left
7136-7250	50	46	Right
7136-7256	56	52	Right
7136-7262	62	58	Right
7136-7268	68	64	Right
7136-7274	74	70	Right

CONTOUR Reinforcement Ring – Templates

Acetate	Digital
Cat No 7138-0365	Cat No 7138-0366

CONTOUR Reconstruction Ring – Templates

Acetate	Digital
Cat No 7138-0362	Cat No 7138-0364

CONTOUR Reinforcement Ring – Sample

Cat No 7137-7056

CONTOUR Reconstruction Ring – Sample

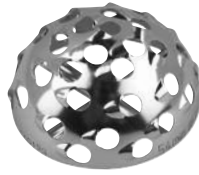
Cat No 7137-7156

Catalog information

REFLECTION® reamer domes

REFLECTION Reamer Domes

Cat No	Size (mm)	Cat No	Size (mm)
Standard Size Domes		Small Size Domes	
7136-2742	42	7136-2738	38
7136-2743	43	7136-2739	39
7136-2744	44	7136-2740	40
7136-2745	45	7136-2741	41
7136-2746	46	Large Size Domes	
7136-2747	47	7136-2765	65
7136-2748	48	7136-2766	66
7136-2749	49	7136-2767	67
7136-2750	50	7136-2768	68
7136-2751	51	7136-2769	69
7136-2752	52	7136-2770	70
7136-2753	53	7136-2771	71
7136-2754	54	7136-2772	72
7136-2755	55	7136-2773	73
7136-2756	56	7136-2774	74
7136-2757	57	7136-2775	75
7136-2758	58	7136-2776	76
7136-2759	59		
7136-2760	60		
7136-2761	61		
7136-2762	62		
7136-2763	63		
7136-2764	64		



REFLECTION Reamer Handle

Cat No 7136-2279



Power Adapters (not included in set)

Cat No	Description
7136-2781	Synthes
7136-2782	Aesculap
7136-2783	Hudson

REFLECTION Small Reamer/Trial Tray

Cat No 7136-2286

REFLECTION Primary Reamer Tray

Cat No 7136-2281

REFLECTION Larger Reamer/Trial Tray

Cat No 7136-2284

Catalog information

CONTOUR[®] compaction domes

CONTOUR Compaction Domes

Cat No	Description
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7136-7641	41mm
7136-7644	44mm
7136-7647	47mm
7136-7650	50mm
7136-7653	53mm
7136-7656	56mm
7136-7659	59mm
7136-7662	62mm
7136-7665	65mm
7136-7668	68mm
7136-7671	71mm
7136-7674	74mm



REFLECTION[®] Reamer Handle

Cat No 7136-2279



T-Handle

Cat No 7136-4006



CONTOUR Compaction Dome Tray

Cat No 7136-7008

Catalog information

CONTOUR® instruments

REFLECTION® Positioner/Impactor

Cat No 7136-2299



REFLECTION Screw Drill Guide

Cat No 7136-2919



CONTOUR Flange Bender

Cat No 7136-7001



Vice Grip Pliers

Cat No 7136-7537



Flexible Screw Drills

Cat No	Length
7136-2915	15mm
7136-2925	25mm
7136-2935	35mm
7136-2950	50mm



Depth Gauge

Cat No 7136-2012



REFLECTION Screw Forceps

Cat No 7136-2298



REFLECTION Ratchet Handle

Cat No 7136-2294



Catalog information

CONTOUR[®] instruments

REFLECTION[®] Straight Screwdriver

Cat No 7136-2293



REFLECTION Ball Joint Screwdriver

Cat No 7136-2295



X-Bar

Cat No MT-2201



Straight Ball Spike

Cat No 7117-0189



Cemented Cup Positioner

Cat No MT-2200



Cemented Cup Placement Heads

Cat No	Size
MT-2222	22 mm
MT-2228	28 mm
MT-2232	32 mm
7136-7436	36 mm



CONTOUR Instrument Tray

Cat No 7136-7003

Orthopaedics

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