Burch-Schneider™ Reinforcement Cage

Product Information
Surgical Technique

More than 28 Years of Clinical Experience

zimmer
Confidence in your hands®

Burch-Schneider Cage
More than 28 Years of Clinical Experience

Because of the increasing number of patients undergoing acetabular revisions, the use of reliable prostheses has become more necessary than ever from an ethical point of view.

The inadequate bone quality often found in patients undergoing revisions demands an adequate, stabilizing acetabular component.

The Burch-Schneider Cage represents a prosthesis that has been used successfully for the last 28 years and has demonstrated convincing results even in difficult cases.

Numerous anatomic and pathologic situations in the acetabulum can be treated with eight acetabular components (four versions each for the right and the left side) with the use of just two special instruments. Treatment with the Burch-Schneider Cage thus represents a solution that is both uncomplicated as well as reliable and long-lasting.

1974 (Prototype)

1986

Earlier Treatment Options

In the past, acetabular protrusion and bony deficits of the acetabulum were treated by placing plates on the joint surface, which were bent to shape and screwed into place. This treatment was intended to correct the center of rotation of the hip, i.e. to produce lateralization of the rotation center. Starting in 1974, the Eichler Ring was used with the same goals.
Since the Eichler Ring could not be adapted to the acetabular floor, a thick cement mantle was needed to fill out the empty space behind the implant; the cement also served to fix the polyethylene inlay.

The Idea

The Burch-Schneider Cage was created by the Swiss orthopedic surgeon Dr. Hans-Beat Burch after he became involved in the treatment of a patient with an older, unhealed acetabular fracture. The prototype was developed especially for the treatment of this patient and implanted by Dr. Burch in 1974 in the Cantonal Hospital of Fribourg, Switzerland.

The implant was conceived as a way to bridge areas of acetabular bone loss of an unhealed, fractured acetabular floor complicated by bony defects in the posterior wall. Bridging the defect would help to achieve secure support of socket and femoral stem. The Eichler Ring, which at the time had yet to be modified to allow screw fixation, was not suitable for such cases.

Perfecting the Method

Dr. Robert Schneider from Biel, Switzerland, took up the idea of bridging acetabular defects and developed it further, emphasizing the necessity of proximal screw fixation of the implant to the iliosacral joint, and suggested impacting the distal plate in the ischial bone.

Since the Cage was the very first implant that could regulate large acetabular defects, it was developed as the Burch-Schneider Cage according to Burch's plans in cooperation with the industry for large-scale production.

Steel was used initially as the implant material. Since 1987, titanium can be utilized for this type of acetabular component thanks to the deep drawing technology.

Results

The implant has been used for the last 28 years with essentially the same design. Around the world, about 125 000 prostheses have been implanted with good results. Numerous publications confirm this positive clinical experience.

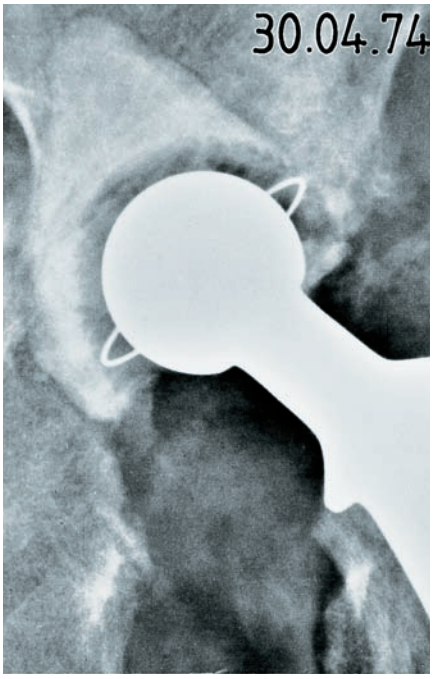
The Burch-Schneider Cage has thus become a classic acetabular implant, which has been copied many times. The Cage allows the relatively simple and stable repair of bony defects in the acetabulum; bone grafts may also be used. The Burch-Schneider Cage allows weight bearing on the affected joint soon after the operation. In many cases, this implant offers the last chance for endoprosthetic acetabular repair if other acetabular implants cannot be securely attached to the acetabulum.

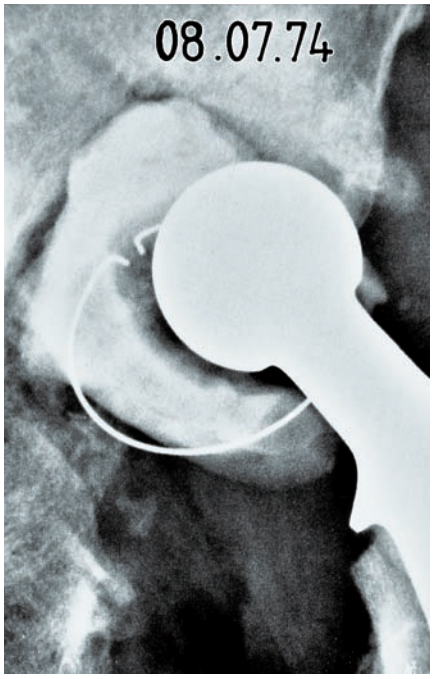
A Historical Case Report

Preoperative

Patient K.H., born on Nov. 7th, 1914, male

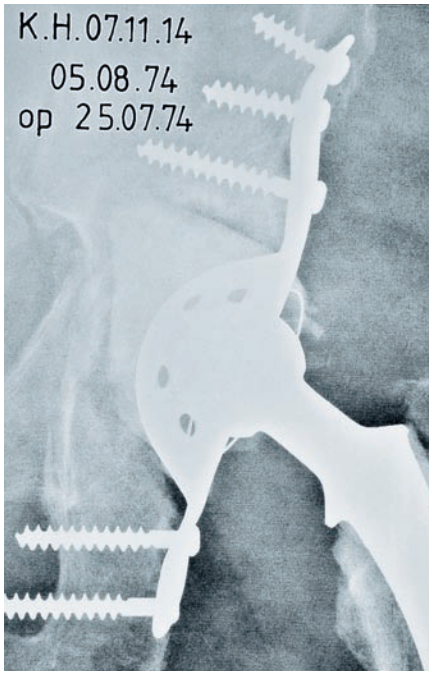
Status post coxofemoral fracture with dislocation on the left, unsuccessful osteosynthesis. Attempt at correction with a cemented polyethylene cup (April 30th, 1974), followed several months later by dislocation of the inlay (July 8th, 1974).





Postoperative

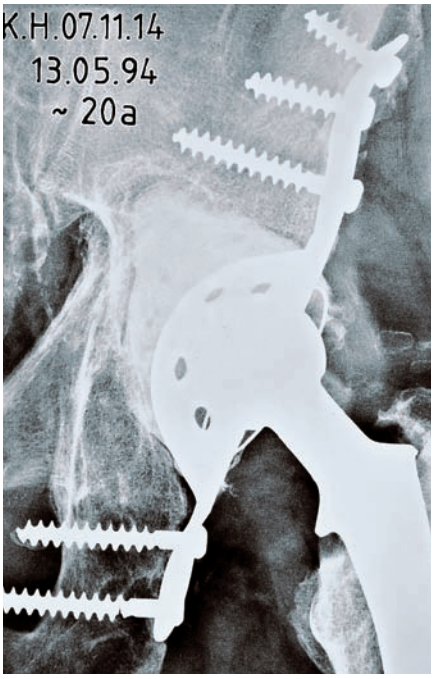
11 days following implantation of the Cage (July 27th, 1974): cemented polyethylene inlay, acetabular floor defect reconstituted with cement.



20 Years later (May 13th, 1994)

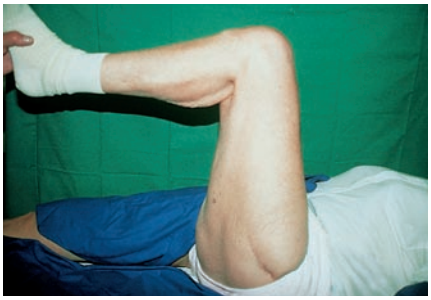
The radiograph shows that the position of the Cage is unchanged.

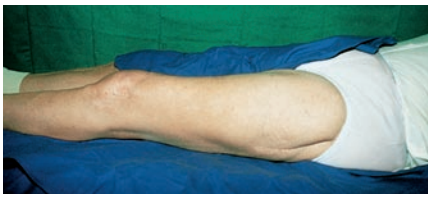
The last follow-up examination revealed very good ability to walk and an unchanged position of the Cage upon radiographic examination.



Clinical Findings

Pain	none	
Limping	mild, with adduction	
Walking	several hundred meters without cane, 500 meters with cane	
Mobility	flex./ext.	100 – 0 – 0
	abd./add.	0 – 10 – 30
	ext. rotation/ int. rotation	30 – 0 – 10



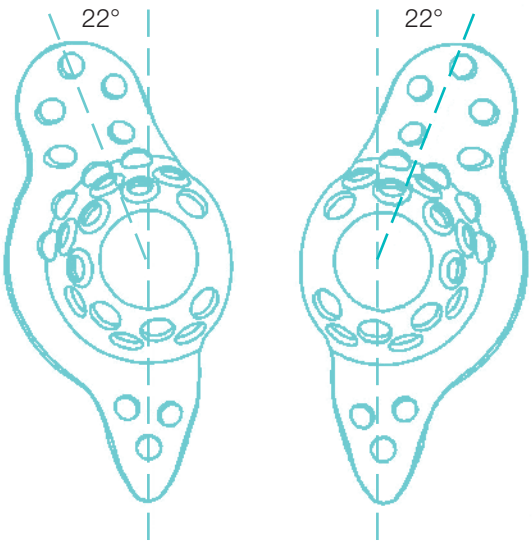


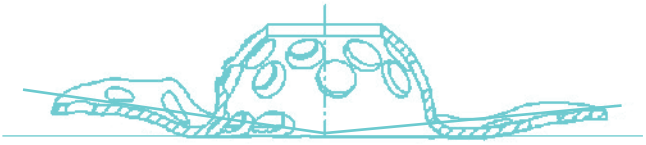
Indications

The principle of the Cage consists in bridging an acetabular defect by anchoring the implant in the ilium and ischium.

At present, the Cage is indicated as follows:

- Revision arthroplasty with large acetabular floor or roof defects
- Acetabular destruction by metastases
- Acetabular fractures, when immediate weight bearing is desired
- Following Girdlestone operation





Inlay side of the shell

Design

The implant is characterized by a hemispherical shell that holds a polyethylene inlay, which in turn has a proximal flange and a distal nose.

Anatomic Accuracy of Fitting

The Burch-Schneider Cage made of pure titanium (Protasul-Ti) is rough-blasted on the side facing bone. It consists of a central shell with a proximal flange for fixation to the ilium and a distal nose for stabilization in or on the ischium.

The shell (which comes in 44, 50, 56 and 62 mm sizes) is hemispherical, open at the tip of the cup, and displays a rough, sieve-like surface pattern. In the curvature for the acetabular roof there are preformed anchorage holes for screw fixation to the iliosacral joint.

The proximal flange is angled 22° posteriorly with respect to the middle of the shell (or the nose). Models for left and right are correspondingly designed. In addition, the shell flange and nose are both bent medially, and the proximal flange is also curved posteriorly.

Individual Adaptation of the Implant

The flange and the nose contain anchorage holes for screw fixation, and can be individually adapted to the anatomic particularities with the special pliers according to the impression of the trial shell.

Versatile Possibilities for Fixation

Numerous anchorage holes for screws in the shell, flange, and nose can be used for fixation purposes.

Screw funnels in the curvature for the acetabular roof direct the screws towards the iliosacral joint.

Fixation may be performed optionally with countersunk or button-head cancellous bone screws (6.5 mm). The choice of screw correspondingly influences the thickness of the cement mantle.

Bone side of the shell

Bone side of the flange

Bone side of the nose

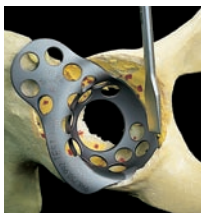
Concept

The implant bridges an acetabular bone defect of 5 to 7 cm by means of a proximal flange to the ilium and a distal nose to the ischium. The Cage must be adapted to the bone, and the bone must be adapted to the implant (smoothing the irregularities, removal of osteophytes), independently of the definitive angle and antetorsion of the polyethylene inlay.

Fitting the Implant

The shell should lie at the center of rotation in the acetabular floor, which should, for the most part, not display large defects. The correct fixation of the Cage is possible after the trial shell has been used to determine the point of entry of the nose into the ischium and whether bending the flange is necessary for a better fit. The adaptation of the flange and/or the nose should be performed with a special bending device with which both flange and nose can be modeled in a rotational or mediolateral direction.

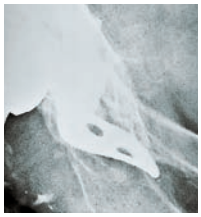
Trial shell (bone side).



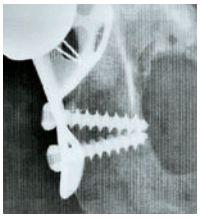
Trial shell in the acetabular floor. Marking of the nose insertion into the ischium.

Fixation

The Cage is proximally secured to the ilium with screws. According to the operative situation, the nose is inserted into the ischium or is fixed to the ascending ischial ramus with two or three screws.



Impacting the nose.



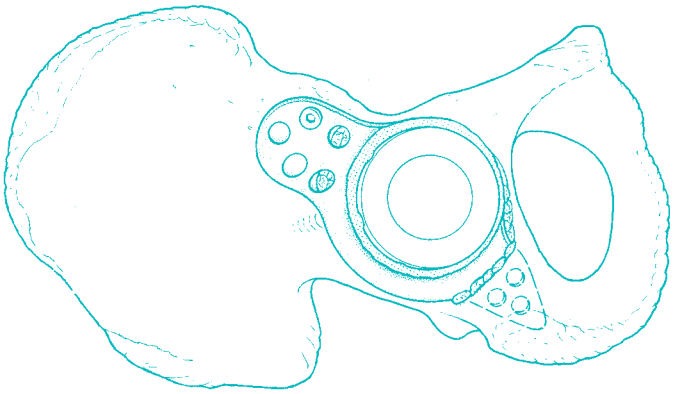
Screw fixation of the nose.

Stability

Primary stability of the implant is achieved by fixation of the proximal flange to the ilium by screws and insertion of the nose into the ischium (or by screw fixation to the ischium). In addition, the nose, which is inserted into the ischium and bent anteriorly, provides additional rotational stability. Osseointegration achieves secondary stability and is supported on the one hand by bone grafts around the shell and on the other hand by the rough-blasted pure titanium exterior (Protasul™-Ti) on the bone side of the implant. Pure titanium has been used as an implant material since 1951 and represents one of the most corrosion-resistant and best tolerated metallic implant materials. Its elasticity makes titanium especially well adapted for the malleable Burch-Schneider Cage.

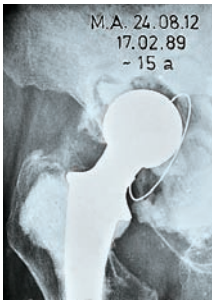
Optimal Orientation of the Polyethylene Inlay

The positioning of the cemented polyethylene inlay is independent of the titanium implant and enables optimal acetabular orientation. It can be rotated and angled to achieve an optimal inclination of 40° and antetorsion of 10° to 15°.

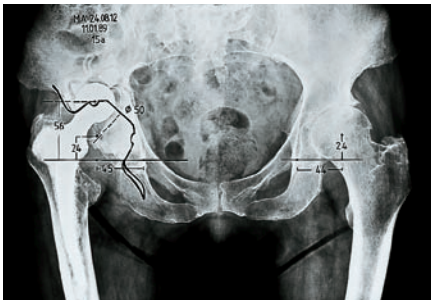


Level of the Center of Rotation

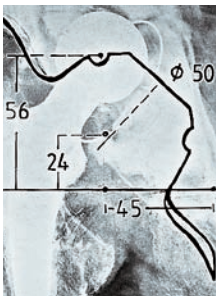
In order to restore the center of rotation to an ideal level, the implant should generally be placed in the acetabular floor (which is preserved in most cases). If necessary, defects in the acetabular roof are compensated by bone grafts, which should then be secured by screws that are directed through the anchorage holes of the flange in a horizontal or slightly descending direction.



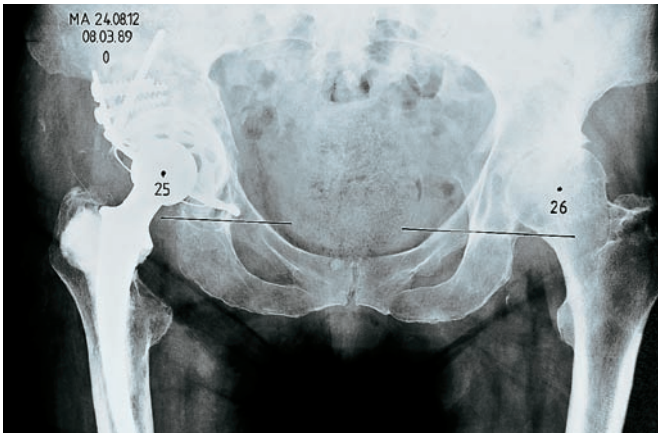
Radiograph about 15 years following the primary implantation of a total hip endoprosthesis on the right.



Loosening and migration of the socket. The center of rotation of the right hip is located 32 mm higher than that of the contralateral side.

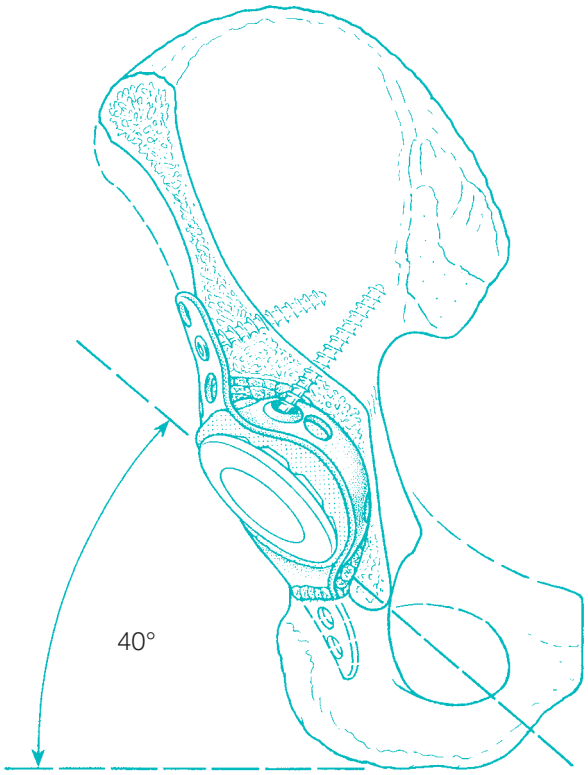


Preoperative planning.



Postoperative radiograph. The center of rotation has been corrected.

Finally, the polyethylene inlay is cemented in place at an optimal inclination of 40° and an antetorsion of 10°-15°.



Combination Table

Reinforcement Cage	PE Inlay	Sulene 22 mm	Sulene 28 mm	Sulene 32 mm	Durasul 28 mm	Durasul 32 mm	Durasul 36 mm	Metasul 28 mm	Trial Shell
									
	Ø **42**	63.22.42	63.28.42		01.00284.042				54.44.20
44 mm	Ø **44**	63.22.44	63.28.44	63.32.44	01.00284.044	01.00324.044		63.16.28-44	54.44.30
	Ø **48**	63.22.48	63.28.48	63.32.48	01.00284.048	01.00324.048	05.95001.050	63.16.28-48	54.50.20
50 mm	Ø **50**	63.22.50	63.28.50	63.32.50	01.00284.050	01.00324.050	05.95001.051	63.16.28-50	54.50.30
	Ø **54**	63.22.54	63.28.54	63.32.54	01.00284.054	01.00324.054	05.95001.053	63.16.28-54	54.56.20
56 mm	Ø **56**	63.22.56	63.28.56	63.32.56	01.00284.056	01.00324.056	05.95001.054	63.16.28-56	54.56.30
	Ø **60**		63.28.60	63.32.60	01.00284.060	01.00324.060	05.95001.056		54.62.20
62 mm	Ø **62**		63.28.62	63.32.62	01.00284.062	01.00324.062	05.95001.057		54.62.30

The size of the inlay should be chosen to be either the same size as the shell or smaller. The thickness of the cement mantle varies accordingly.

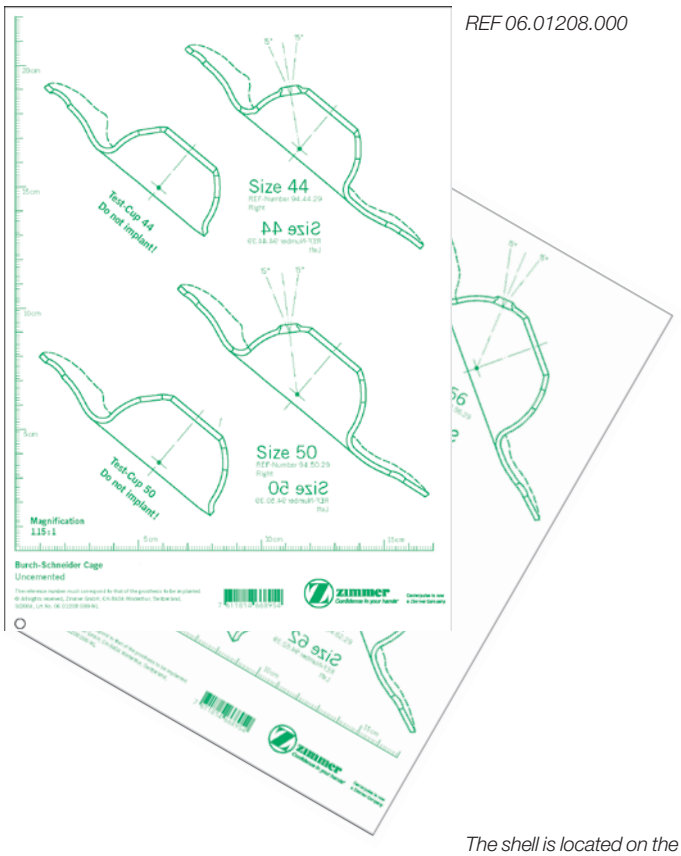
Preoperative Planning

Preoperative planning is done with the aid of a template that serves to determine the size and position of the Cage before the operation. By using this method, potential difficulties that might occur during the operation can be foreseen and complications may be avoided.

Adequate radiographs, and, where indicated tomography and CT or MRT imaging, should allow the evaluation of the condition of the acetabulum.

The planning should aim to reconstitute the center of rotation of the hip, which should be calculated by taking the contralateral side into account (above and just lateral to the tear drop figure). The size of the implant as well as the localization of the screws in the flange can be determined by directing the screws horizontally towards the iliosacral joint when the Burch-Schneider Cage is positioned in the acetabular roof. Additional screws will need to be secured horizontally if bone grafts are placed between the Cage and the acetabular roof.

Finally, one must evaluate the need for bone grafting.



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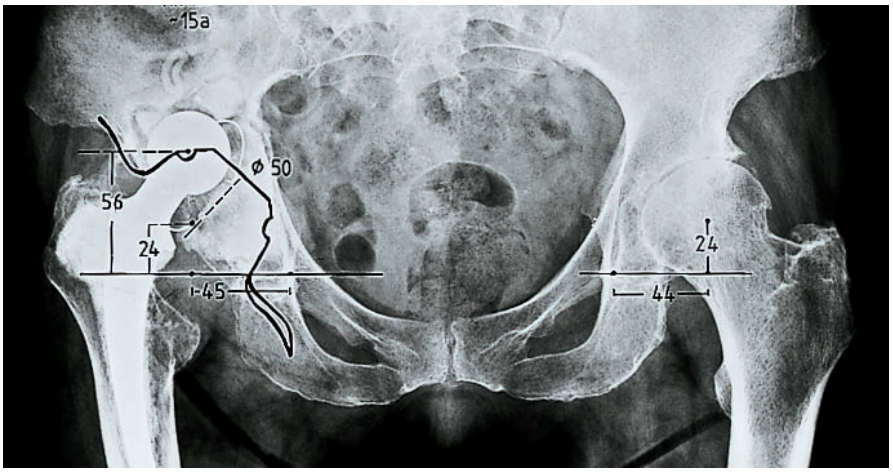
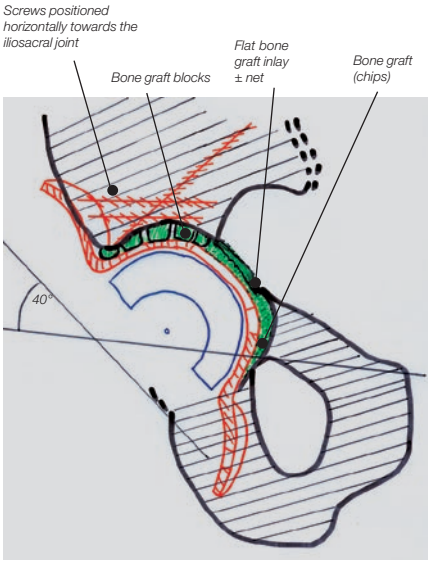
The shell is located on the acetabular floor (medial wall) and is not in contact with the acetabular roof. Stabilization of the Cage against the iliosacral joint with screws. The bone graft inlays are secured by screws that are inserted horizontally with slight inferior inclination.

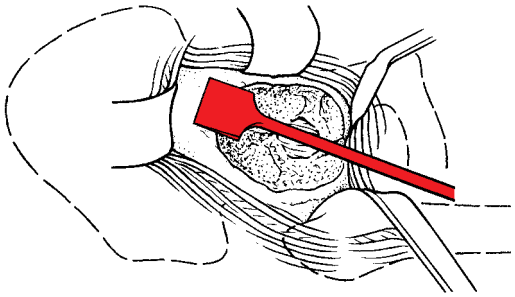




Operative Technique

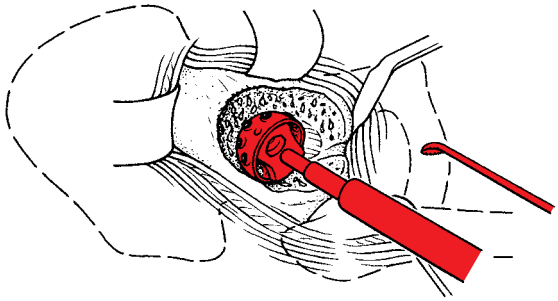
Preparation of the Acetabulum

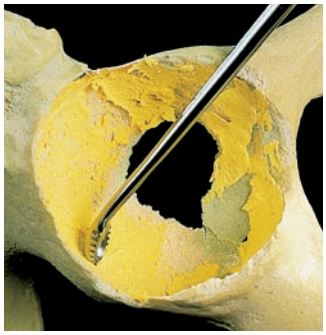
The acetabulum must be exposed over the complete circumference and surrounding scar tissue must be removed. The gluteus medius and gluteus minimus are detached above the acetabulum with a broad chisel so that the flange of the Cage can subsequently be attached there.

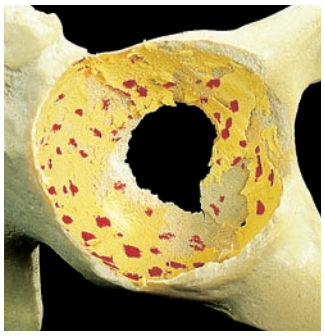


Reaming the Acetabulum

Necrotic tissue is removed. The soft tissue is removed with a curette and a small acetabular reamer is used to ream acetabular floor and roof until signs of bleeding are seen.

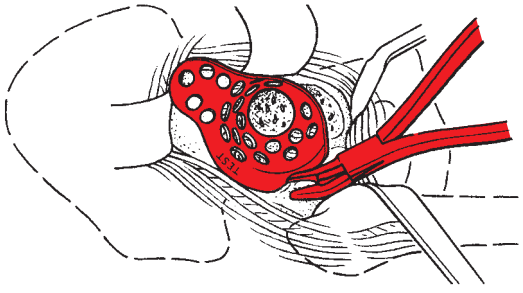


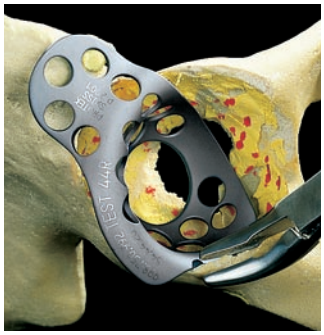




Insertion of the Trial Component

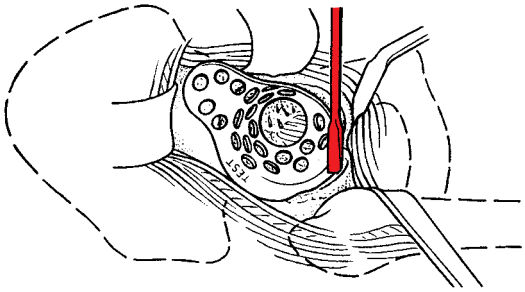
Osteophytes located on the edge are removed in order to optimize the position of the Burch-Schneider Cage in the acetabular floor.

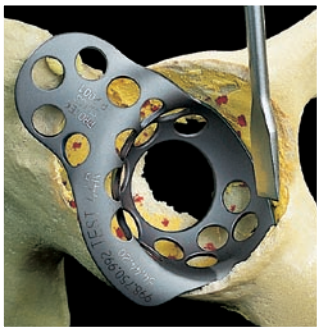




Marking the Nose Insertion Site

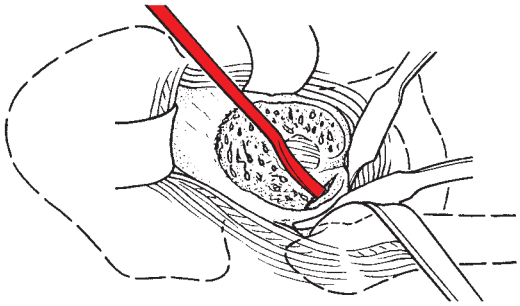
A small chisel is used to mark the spot where the nose will be inserted into the descending ischial ramus.

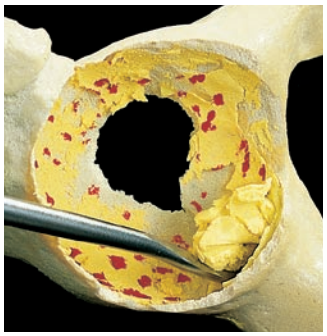




Preparation of the Nose Insertion Site

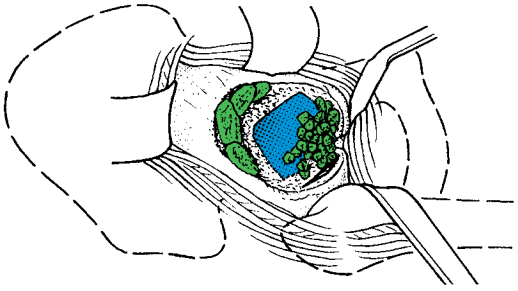
A small bent chisel and a curette are used to hollow out as much as necessary of the cancellous bone of the ischial ramus.

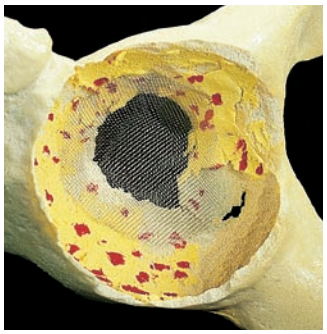


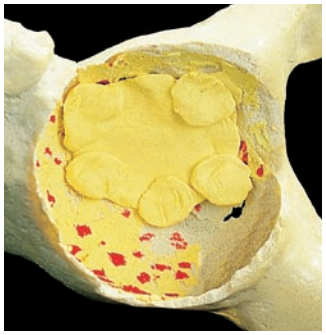


Filling the Defects

The central acetabular bone defect is covered with a fine metal mesh and/or with a flat bone graft inlay. The roof defect is filled proximally with bone grafts, distally and in the acetabular floor, bone chips are used.

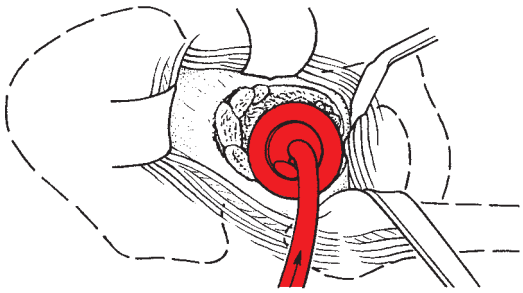


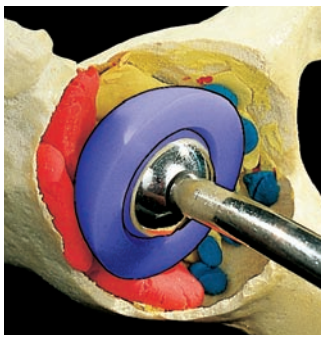




Packing the Bone Grafts

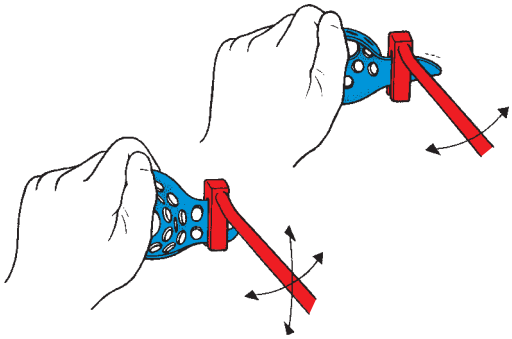
The bone chips are pressed into the acetabular floor with the polyethylene trial shell.





Modelling the Implant

The implant is bent distally in a mediolateral direction and rotated proximally according to the anatomical peculiarities.

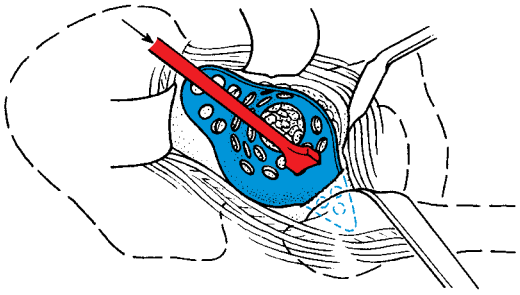


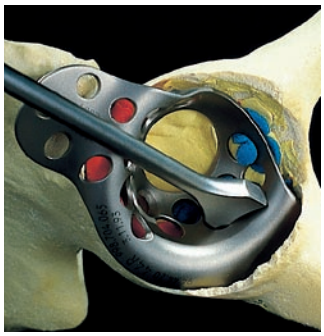
The shell should be adapted only with the special pliers, and multiple manipulations should not be performed at a given position to avoid unnecessary weakening of the material.

Distal Fixation

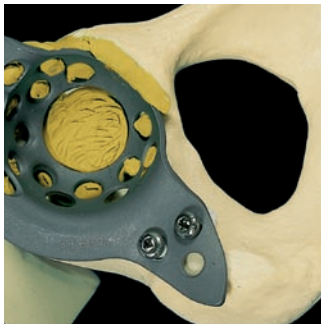
The distal nose of the Cage is tapped into the insertion position in the ischium until the implant lies in the acetabular floor.

The method of distal fixation by impaction is preferable because of the additional rotational stability.





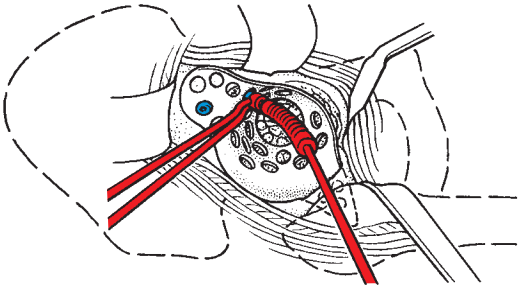
Alternative Distal Fixation
If the distal nose cannot be tapped into the descending ischial ramus, it should be secured to it with screws following preparation of the ramus.

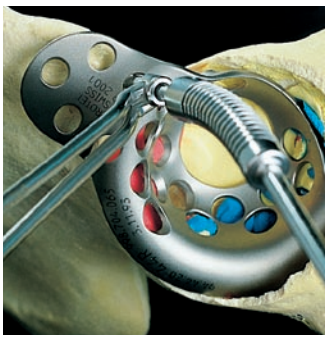


Proximal Fixation

The Burch-Schneider Cage should be secured to the ilium with screws.

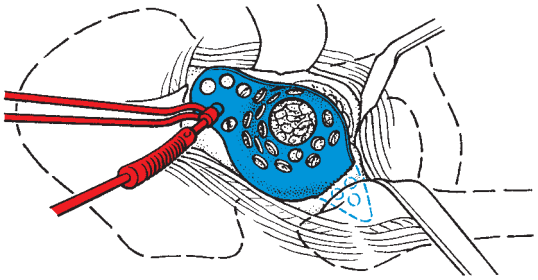
If the implant is in contact with the acetabular roof, then the screws will be directed towards the iliosacral joint through the anchorage holes in the proximal flange of the cage (ideally 3–4 screws for biomechanical reasons).

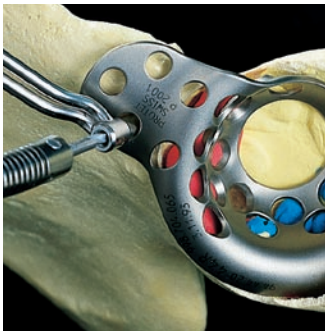




Securing the Bone Grafts

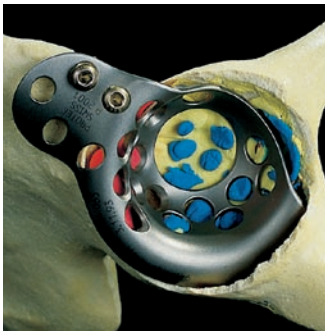
If the Burch-Schneider Cage is not in contact with the acetabular roof and the gap has been filled in with bone grafts, the bone grafts must be secured with several screws directed posteriorly in an almost horizontal, slightly declining position. This helps avoid proximal migration of the implant when additional screws are inserted against the iliosacral joint.





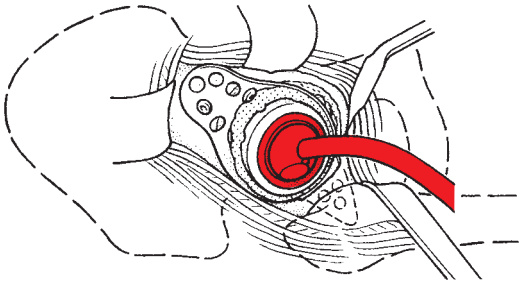
Padding with Cancellous Bone

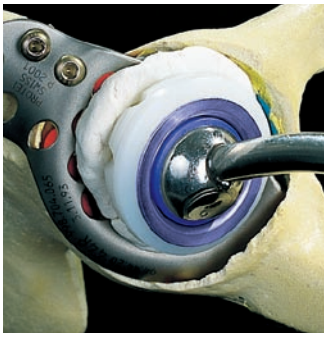
The gap at the pole is filled with morseled cancellous bone.



Cementing the Inlay

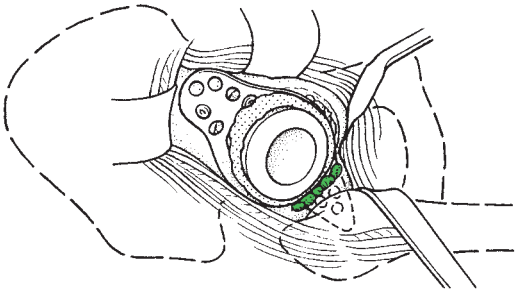
The polyethylene inlay is cemented in place at an inclination of 40° and an antetorsion of 10°–15°.

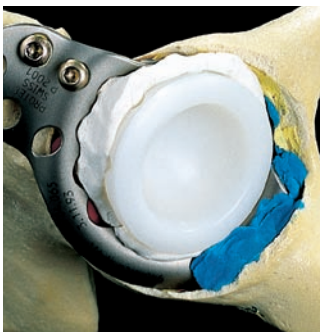




Filling with Cancellous Bone

The entry point of the tip and potential defects of the ischial ramus are filled in with cancellous bone chips.



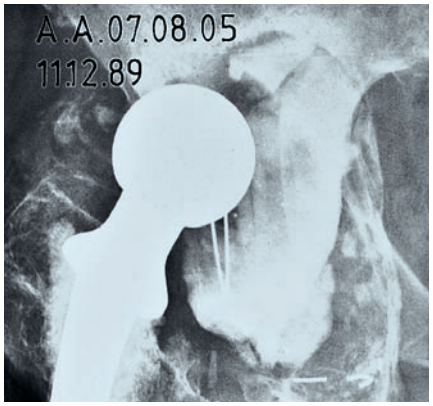


Postoperative Treatment

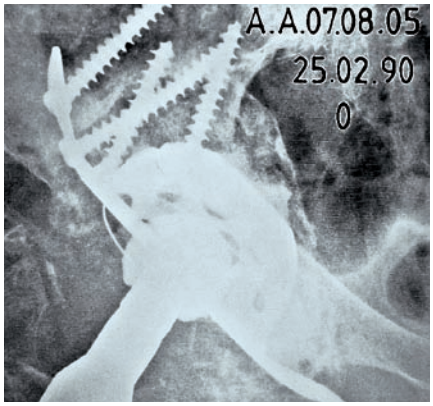
In principle, postoperative treatment following implantation of the Burch Schneider Cage is identical to that after a primary operation.

Case Studies

Case 1

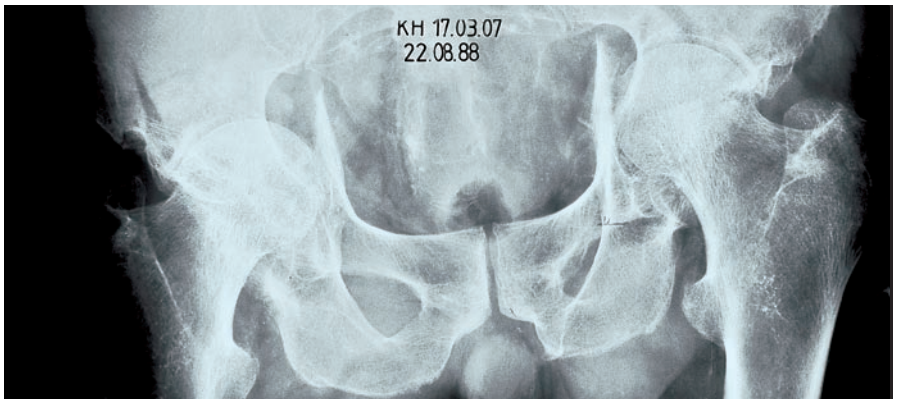


A.A., born Aug. 7th, 1905, female
16 years following the primary operation. Destruction of the acetabulum, dislocation, superior protrusion of prosthesis.

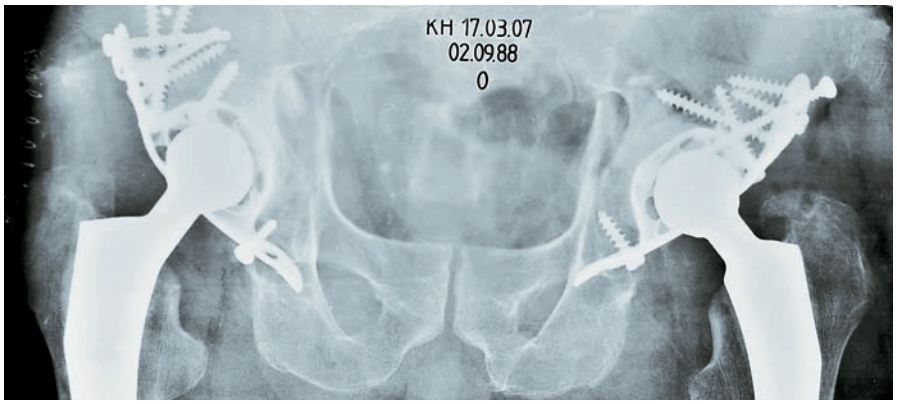


Postoperative radiograph
Correction of the center of rotation.

Case 2

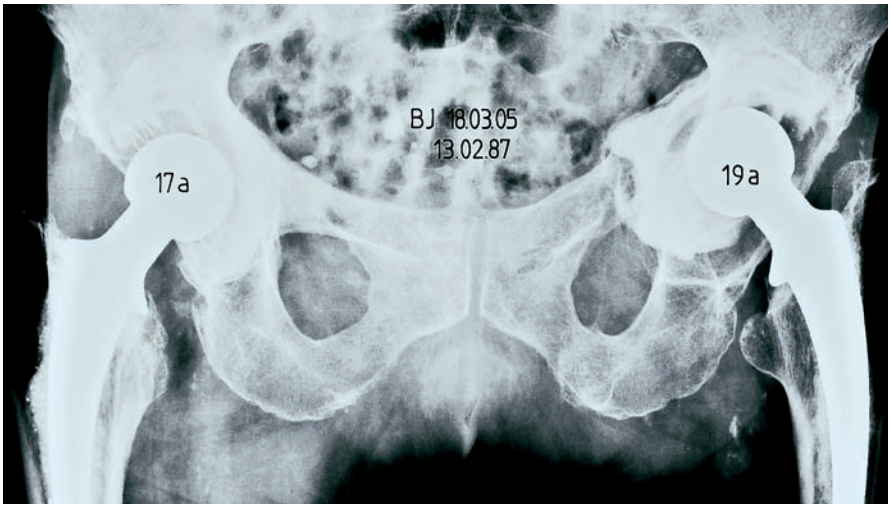


K.H., born March 17th, 1907, male
Bilateral central coxofemoral fracture dislocation.

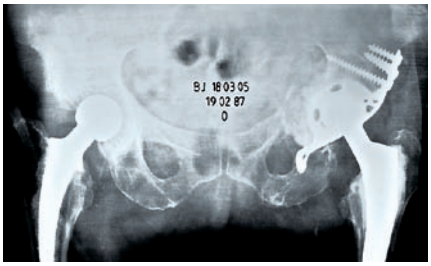


Postoperative radiograph
Immediate mobilization of this 81-year-old man was made possible by bilateral implantation of Burch-Schneider Cages in a single operation.

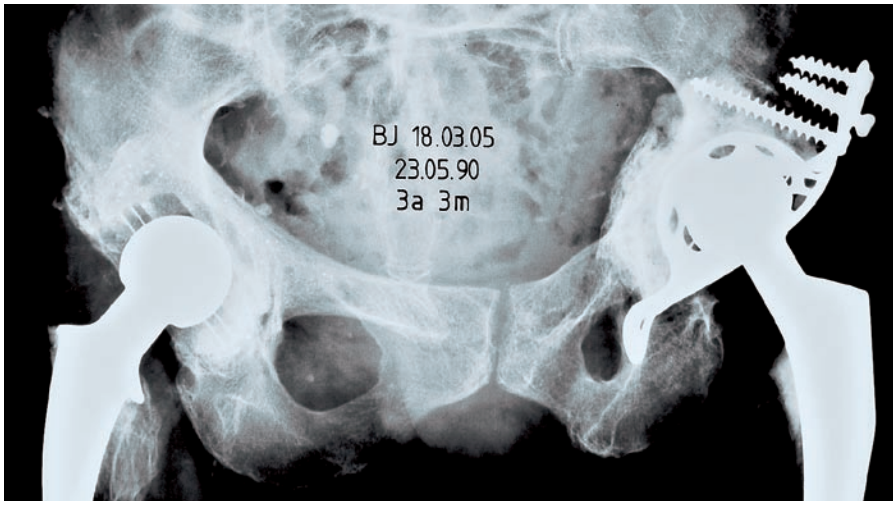
Case 3



B.J., born March 18th, 1905, female
Total hip endoprosthesis on the right side 17 years ago and on the left side 19 years ago. Destruction of the acetabulum and the acetabular bone stock.



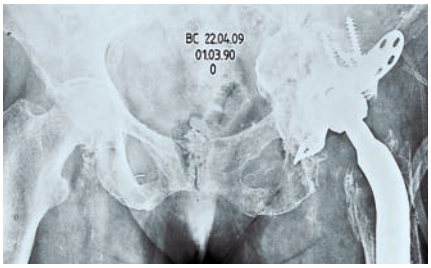
Postoperative radiograph on Feb. 19th, 1987
Implantation of the Burch-Schneider Cage.



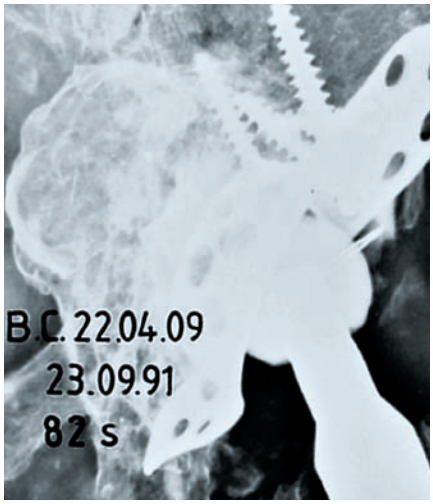
Follow-up examination 3 years and 3 months later
Unchanged position of the Burch-Schneider Cage, ingrowth of the bone graft.

Case 4

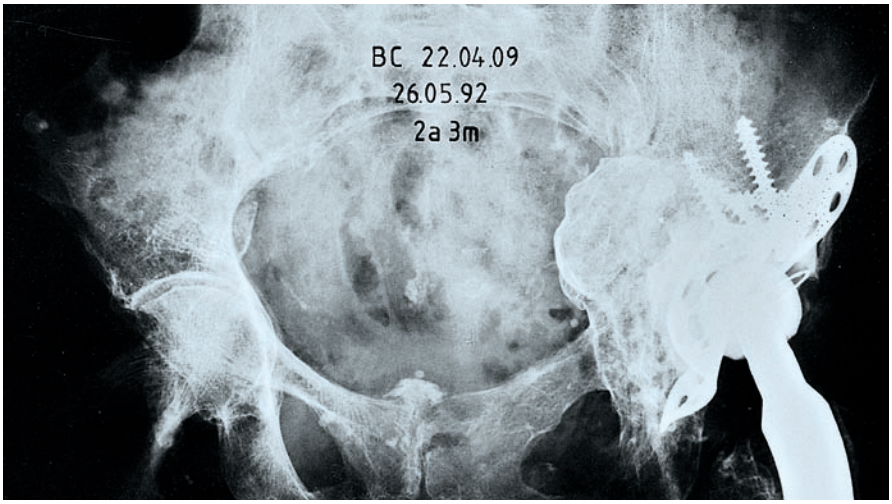
B.C., born April 22nd, 1909, female
Central dislocation of an acetabular prosthesis after an unknown number of years following the primary operation.



Postoperative radiograph on March 1st, 1990
Revision and implantation of a Burch-Schneider Cage.

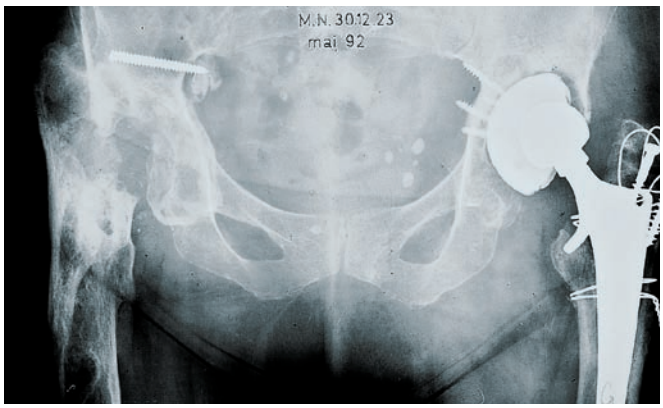


Follow-up examination 1 year and 7 months later
Acetabulum stable, massive bone ingrowth in the acetabular floor.

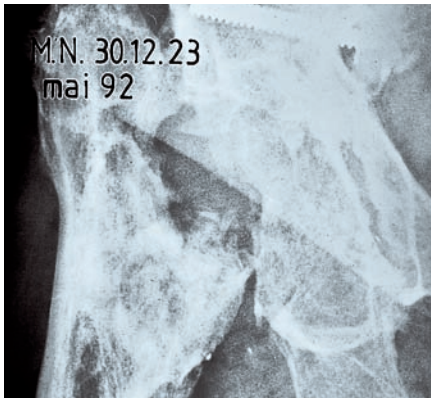


Follow-up examination 2 years and 3 months later
No change in position of the Burch-Schneider Cage or the bone remodelling.

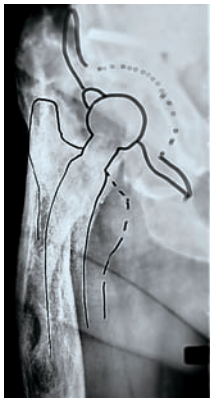
Case 5



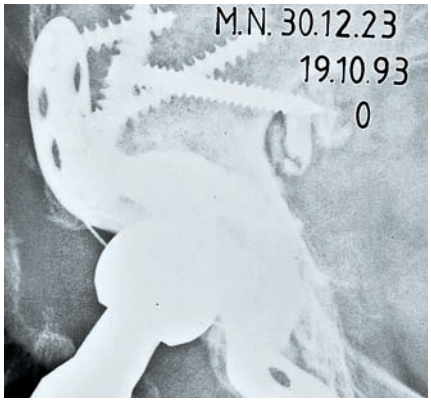
M.N., born Dec. 30th, 1923, female
Status after primary operation and revision.
Infection, Girdlestone operation.



Detailed radiograph of the acetabulum, May 1992

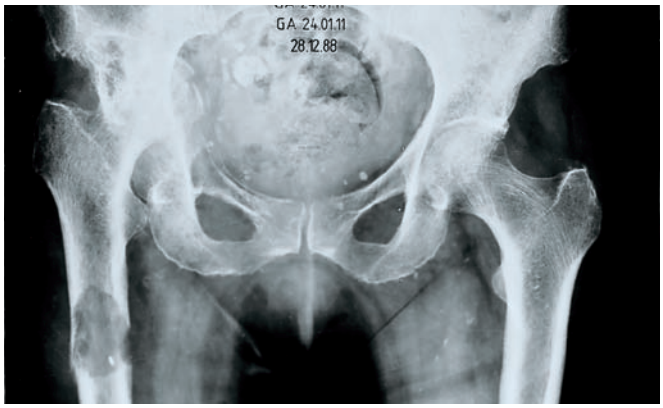


Planning and postoperative radiograph on Oct. 19th, 1993

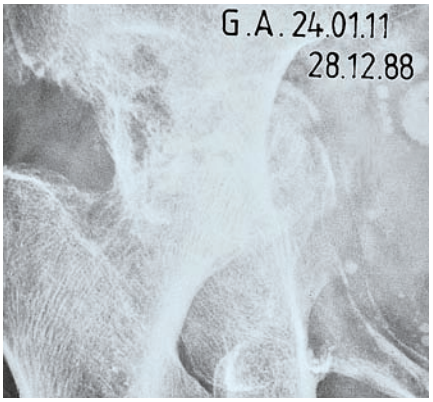


Detailed radiograph of the acetabulum

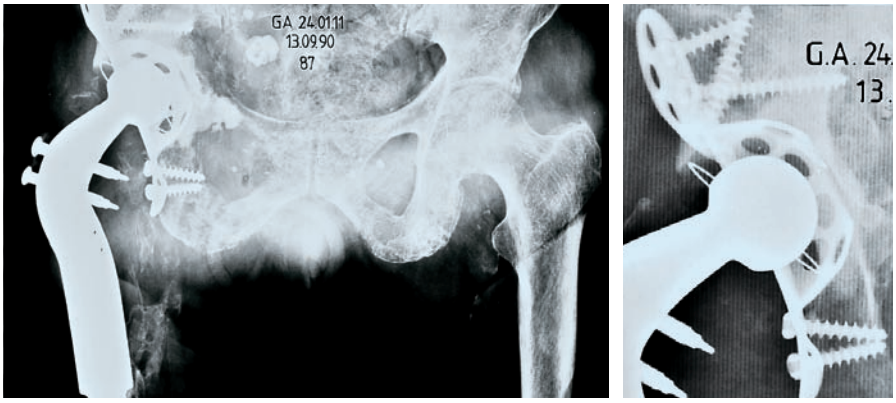
Case 6



G.A., born Jan. 24th, 1911, female
Pathologic fracture of the femoral stem, destruction of the femoral head with pelvic invasion of breast carcinoma metastases.



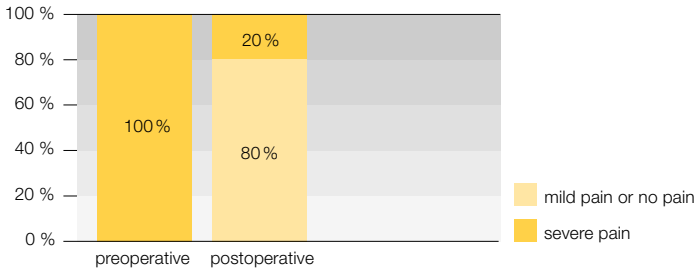
Detailed radiograph of the acetabulum, Dec. 1988



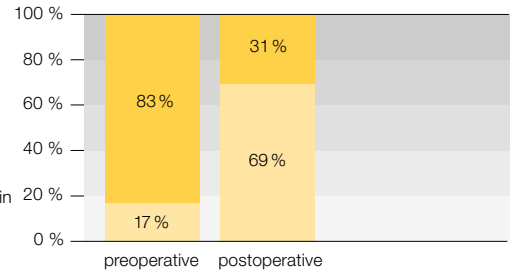
Follow-up examination 18 months later
Implantation of a Burch-Schneider Cage and a tumor prosthesis.
18 months later, the patient was still able to ambulate with cane.

Long-term Results

Clinical results; pain
Peters, Curtain, Samuelson, J Arthroplasty 1995



Clinical results; pain
Gill, Sledge & Müller, JBJS [Br] 1998



Acetabular revision with the Burch-Schneider anti-protrusio cage and cancellous allograft bone

Peters CL, Curtain M, Samuelson KM
J Arthroplasty 10: 307–312, 1995

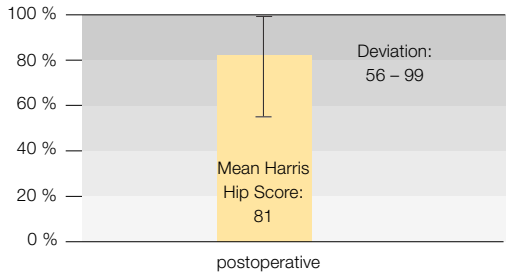
A retrospective study of 25 patients who underwent acetabular revisions with the Burch-Schneider antiprotrusio cage. In all cases cancellous bone allografting was performed.
25 patients with 28 cages were left to perform a follow-up.
Follow-up periods averaged 33 (24–59) months. The average age at surgery was 52 years.
The male/female ratio 5:20. Patients had undergone an average of 2.1 operations per hip prior to inclusion.
The majority of the hip joints, 22 (22/28 = 86%), had a type III bone loss according to the AAOS Classification. Postoperatively 80% of the patients had mild or no pain. Significant acetabular implant migration (3 mm sensitivity) was documented, in 14% of the acetabular reconstructions. No patients required revision of the antiprotrusio cage for problems related to the acetabular reconstruction.
«For failed acetabular components associated with moderate to massive bone loss, the antiprotrusio cage reliably reconstructed the hip joint center and acetabular bone stock.»

The Burch-Schneider anti-protrusio cage in revision total hip arthroplasty

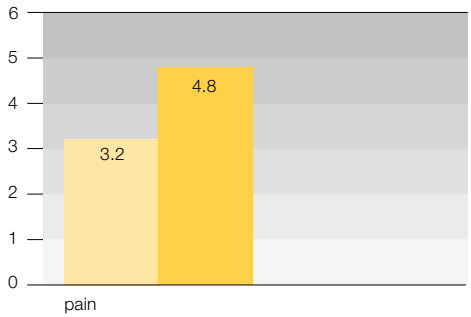
Gill TJ, Sledge JB, Müller ME
J Bone Joint Surg 80-B: 946–953, 1998

A retrospective study of 58 patients who all underwent revision hip arthroplasty with a Burch-Schneider anti-protrusio cage. In those patients 63 hip arthroplasties were performed. The original group (all cages placed by the senior author MEM) existed of 78 patients with 84 anti-protrusio cages. Of these 21 dropouts, 6 (28%) showed evidence of cage malfunctioning.
In 38 (38/63 = 60%) hips bone allografts were used to fill the defects. Follow-up periods averaged 8.5 years (5–18 years). The average age at operation was 63 years. The male/female ratio 1:4.8 (10/48). The hips of most patients (36/63 = 57%) showed a type I bone loss according to the AAOS Classification, 14 (14/63 = 22%) had a type III bone loss. The pain diminished from 83% intense to moderate pain preoperatively to 31% intense to moderate pain postoperatively. There was an implant failure that required revision in five hips (5/63 = 8%), of which 1 septic loosening and 1 recurrent luxation.
Of the remaining 58 hips, 1 had evidently loosened (broken screws). 14 (24%) hips showed a radiolucency sign which surrounded the implant in 3 cases (5%). 2 (3%) hips showed a migration of > 2 mm. All but 1 (3%) of the 38 bone allografts showed incorporation of the bone graft.
«Impressive augmentation of bone stock can be achieved with the anti-protrusio cage, while enabling the hip to be centered in the anatomical position.»

Clinical outcome according to Harris
Rosson & Schatzker, JBJS [Br] 1992



Clinical outcome according to Merle d'Aubigné
Symeonides, Petsatodes et al., Acta Orthop Scand 1997



The use of reinforcement rings to reconstruct deficient acetabula

Rosson J, Schatzker J
J Bone Joint Surg 74-B: 716–720, 1992

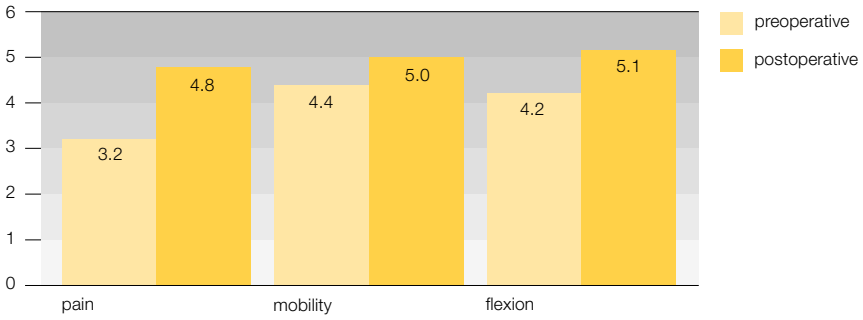
A retrospective review of 64 patients out of a group of 81 patients. In these 64 (64/81= 79%) patients 66 acetabula had been reconstructed with either the Müller ring (46) or the Burch-Schneider anti-protrusio cage (20), which was used in 19 patients. In 18 (18/20 = 90%) of the Burch-Schneider implants bone grafting was performed, in 2 (2/20 = 10%) only acrylic cement was used. Follow-up periods averaged 5 years (2–10 years). The average age at operation was 62 years (22–73 y). The male/female ratio 8:11. In two patients (2/20 = 10%) a Burch-Schneider cage was used as primary implant.
The majority of the hip joints (14/20 =70%) had a type III bone loss according to the AAOS Classification.
No radiolucency > 2 mm was seen. In one cage a broken screw was observed. All bone transplants seem to be incorporated. No patients required revision of the anti-protrusio cage.
«The Müller ring is indicated for acetabula with isolated peripheral defects or cavitary defects confined to one or two sectors.
The Burch-Schneider cage should be used for medial segmental defects, extensive cavitary defects and combined deficiencies. Defects should be reconstituted with bone graft rather than cement.»

Replacement of deficient acetabulum using Burch-Schneider cages

Symeonides P, Petsatodes G et al.
Acta Orthop Scand (Suppl 275) 68: 30–32, 1997

A study of 22 patients who underwent surgery on 24 hips with massive acetabular deficiency due to absence of good bone stock. In 3 cases (13%) a primary total hip was implanted. In 21 (87%) a revision arthroplasty was performed, in which the Burch-Schneider anti-protrusio cage and cancellous bone allografting were implanted. Follow-up periods averaged 8 years (2–10 years). The average age at surgery was 58 years (42–72 y). The male/female ratio 1:21. The majority of the hip joints (71%) had a type III bone loss according to the AAOS Classification. There was pain relief of 1.6 points according to Merle d'Aubigné (3.2–4.8) after implantation. Bone grafts appeared to have incorporated in all hips and no signs of graft absorption were observed. In one patient two broken screws together with a radiolucency sign were observed.
«Good stability was achieved in all patients and no mechanical failure was observed. Satisfactory results were observed in all but one of the cases, indicating that effective support of the acetabulum can be achieved using a Burch-Schneider cage.»

Clinical outcome according to Merle d'Aubigné
Berry & Müller, JBJS [Br] 1992



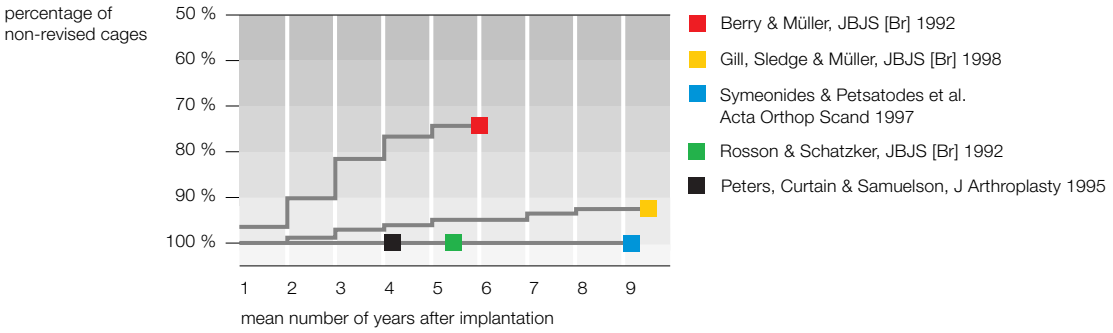
Revision arthroplasty using an anti-protrusio cage for massive acetabular bone deficiency
Berry D, Müller ME
J Bone Joint Surg 74-B: 711–715, 1992

A retrospective study of 35 patients, all with massive acetabular bone loss, who underwent revision hip arthroplasty with a Burch-Schneider anti-protrusio cage. In these patients a total of 42 hip arthroplasties were performed. In 20 (20/42 = 48%) patients bone grafting was performed, in 22 (22/42 = 52%) only acrylic cement was used to fill the defects. The average follow-up period was 5 years (5–11 years). The average age at surgery was 62 years. The male/female ratio 8:25.
All patients had a type III bone loss according to the AAOS Classification. There was pain relief of 1.6 points according to Merle d'Aubigné (3.2–4.8) after implantation. A failure due to sepsis was seen in 5 hips (5/42 = 12%) and aseptic loosening in 5 (12%); the remaining 32 hips (32/42 = 76%) showed no evidence of acetabular component failure or loosening.
«We report the use of an 'anti-protrusio cage', secured to the ischium and ilium, which bridges areas of acetabular bone loss, provides support for the acetabular socket, and allows pelvic bone grafting in an environment protected from excessive stress.»

The evaluation of the results was performed according to the Harris Hip Score and the Postel-Merle d'Aubigné Score. The Harris Hip Score assigns a value on a scale from 1 to 100 that is defined by a number of well-defined subjective and objective parameters.
The clinical assessment according to Postel-Merle d'Aubigné is done with reference to a scale from 1 to 6 (1 = very poor, 6 = very good) which is based on well-defined parameters such as pain, mobility, and ability to walk.

Summary of Results

Estimated survival rates of Burch-Schneider Cages in the mentioned publications, plotted by the years in situ.



The illustration presents a compilation of the calculated survival curves taken from the previously cited publications. The 4–9-year results are very encouraging, especially if one takes into account that this implant is used for cases of severe loosening of the acetabular component and severe acetabular defects. Excellent primary stability is achieved by anchoring or screwing the nose into the ischium and by fixation of the flange in the ilium. Good primary stability is necessary for reliable secondary stability due to osseointegration, which is achieved by placing bone graft underneath the implant and by the rough outer surface of the implant. Together with the cemented inlay, ideal requirements for long-term stability are thus fulfilled.

The Designing Surgeons

Dr. Hans-Beat Burch (1926)

Specialist for surgery and orthopedics, corresponding member of the Sociedad Venezolana de Cirurgía Ortopédica y Traumatología and of the same society in Peru.

Training in general surgery and orthopedic surgery under Maurice E. Müller (hip surgery and traumatology of the locomotor apparatus).

1967–1992 Fribourg, Switzerland. Founder and Department Head of the Department of Orthopedic Surgery in the Cantonal Hospital of Fribourg, member of various professional societies, member of the Swiss AO and Secretary of the Swiss Society for Orthopedics.

Over 40 publications in orthopedics and traumatology, author of numerous books.

Dr. Robert Schneider (1912–1990)

Specialist for general surgery, honorary professor in surgery of Mainz University (Germany), corresponding member of the «Deutsche Gesellschaft für Unfallheilkunde, Versicherungs-, Versorgungs- und Verkehrsmedizin».

1956–1979 Medical Chief of Grosshöchstetten Hospital (Bern, Switzerland), later surgeon in Biel (Switzerland).

Over 40 publications. World's largest documentation on intertrochanteric osteotomy. 1981 monograph on the hip total endoprosthesis with 2000 cases of the author, 1987 revised second edition. Coeditor of the AO manuals.

Literature

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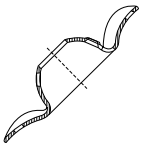
Implants

Burch-Schneider Cage
H.B. Burch – R. Schneider

Details
Left

CP Titanium
(Protasul™-Ti)

sterile packed

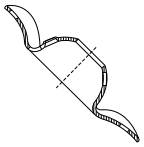


Size	REF
44 mm	94.44.39
50 mm	94.50.39
56 mm	94.56.39
62 mm	94.62.39

Details
Right

CP Titanium
(Protasul™-Ti)

sterile packed



Size	REF
44 mm	94.44.29
50 mm	94.50.29
56 mm	94.56.29
62 mm	94.62.29

Countersunk Cancellous Bone Screw

Details
Ø 6.5 mm

Protasul™-100

Size	REF
15 mm	42.19.15
20 mm	42.19.20
25 mm	42.19.25
30 mm	42.19.30
35 mm	42.19.35
40 mm	42.19.40
45 mm	42.19.45
50 mm	42.19.50
55 mm	42.19.55
60 mm	42.19.60

Cancellous Bone Screw

Details
Ø 6.5 mm

Titanium

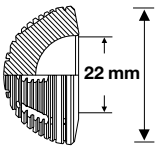
Size	REF
—	
20 mm	02.03147.020
25 mm	02.03147.025
30 mm	02.03147.030
35 mm	02.03147.035
40 mm	02.03147.040
45 mm	02.03147.045
50 mm	02.03147.050
55 mm	02.03147.055
60 mm	02.03147.060

Low Profile Cup, cemented

Original M.E.Müller™

Details

UHMW Polyethylene
(Sulene™-PE)
Radiological mark
CP Titanium
(Protasul™-Ti)

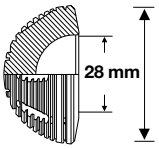


sterile packed

Size	REF
36 mm[1)]	63.22.36
38 mm[1)]	63.22.38
40 mm[1)]	63.22.40
42 mm	63.22.42
44 mm	63.22.44
46 mm	63.22.46
48 mm	63.22.48
50 mm	63.22.50
52 mm	63.22.52
54 mm	63.22.54
56 mm	63.22.56
58 mm	63.22.58

Details

UHMW Polyethylene
(Sulene™-PE)
Radiological mark
CP Titanium
(Protasul™-Ti)



sterile packed

Size	REF
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—	
42 mm[1)]	63.28.42
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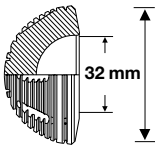
46 mm	63.28.46
48 mm	63.28.48
50 mm	63.28.50
52 mm	63.28.52
54 mm	63.28.54
56 mm	63.28.56
58 mm	63.28.58
60 mm	63.28.60
62 mm	63.28.62
64 mm	63.28.64

Details

UHMW Polyethylene
(Sulene™-PE)
Radiological mark
CP Titanium
(Protasul™-Ti)



sterile packed

Size	REF
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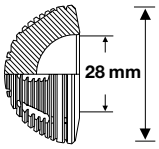
—	
44 mm[1)]	63.32.44
46 mm[1)]	63.32.46
48 mm	63.32.48
50 mm	63.32.50
52 mm	63.32.52
54 mm	63.32.54
56 mm	63.32.56
58 mm	63.32.58
60 mm	63.32.60
62 mm	63.32.62
64 mm	63.32.64

[1)] Must be implanted with a Müller Ring, Ganz Ring or a Burch-Schneider Cage.

Durasul™ Low Profile Cup, cemented

Details

Durasul™



sterile packed

Size	REF
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—	
—	
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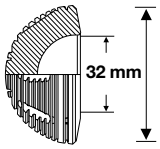
46 mm	01.00284.046
48 mm	01.00284.048
50 mm	01.00284.050
52 mm	01.00284.052
54 mm	01.00284.054
56 mm	01.00284.056
58 mm	01.00284.058
60 mm	01.00284.060
62 mm	01.00284.062
64 mm	01.00284.064

Details

Durasul™



sterile packed

Size	REF
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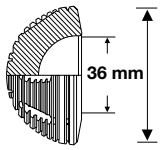
48 mm	01.00324.048
50 mm	01.00324.050
52 mm	01.00324.052
54 mm	01.00324.054
56 mm	01.00324.056
58 mm	01.00324.058
60 mm	01.00324.060
62 mm	01.00324.062
64 mm	01.00324.064

Details

Durasul™



sterile packed

Size	REF
—	
—	
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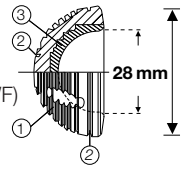
—	
—	
—	
48 mm	05.95001.050
50 mm	05.95001.051
52 mm	05.95001.052
54 mm	05.95001.053
56 mm	05.95001.054
58 mm	05.95001.055
60 mm	05.95001.056
62 mm	05.95001.057
64 mm	05.95001.058

Low Profile Cup, cemented with Metasul™ Inlay

Details

1 UHMW Polyethylene
(Sulene™-PE)
2 CP Titanium
(Protasul™-Ti)
3 CoCrMo
(Protasul™-21 WF)

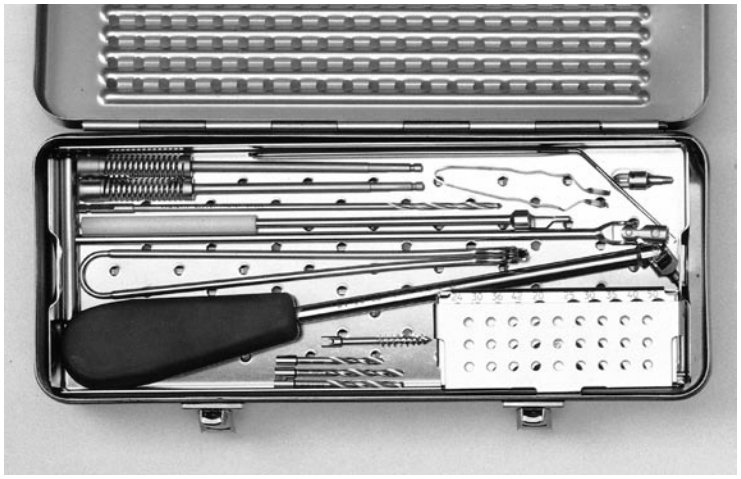


sterile packed

Size	REF
—	
—	
—	
—	
44 mm	63.16.28-44
46 mm	63.16.28-46
48 mm	63.16.28-48
50 mm	63.16.28-50
52 mm	63.16.28-52
54 mm	63.16.28-54
56 mm	63.16.28-56
58 mm	63.16.28-58

Note: The Low Profile Cup with Metasul™ inlay (63.16.28-XX) may only be paired with the specially designed Metasul™ heads (19.28.XX).

Instruments



Case for Acetabular Roof Reinforcement, complete, see product catalogue

REF
99.29.30-00

Müller Low Profile Cup Tray complete

REF
01.00245.626

Special Instruments

Test shell for Burch-Schneider Cage

left	REF
Ø 44 mm	54.44.30
Ø 50 mm	54.50.30
Ø 56 mm	54.56.30
Ø 62 mm	54.62.30

right	REF
Ø 44 mm	54.44.20
Ø 50 mm	54.50.20
Ø 56 mm	54.56.20
Ø 62 mm	54.62.20

Bending instrument for flanges

REF
01.00199.100

Hex wrench

	REF
3.5 mm	79.15.84

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