Surgical Technique

smith&nephew

EP-FIT PLUS◇

Press-Fit cup system

Contents

Nota Bene

The surgical technique described in this brochure is the procedure suggested by the authors for uncomplicated surgery. The surgeon must, however, decide which procedure is the most suitable and effective for each individual patient.

Introduction

The shells designed for total hip replacement by press-fit have several advantages, including ease of manipulation and a minimum degree of bone resection.
In an acetabulum that is not deformed, when a hemispherical press-fit shell that is not oversized is implanted, much of the mechanical load is still transferred to the central area of the acetabulum. There is also partially no load on the peripheral ring – its lower part in particular. For this reason hemispherical shells often only have limited stability. Further measures to improve the stability such as applying screws, pins and/or the use of oversized shells («Oversizing»; Lachiewicz et al., 1989) have their own set of problems.

With hemispherical press-fit shells, however, a greater level of stability can be achieved where there is a protrusio acetabuli. In this case the mechanical load is actually on the peripheral region (Adler et al., 1992). It would therefore be logical to optimize the intrinsic stability of the press-fit shell by reconstructing the conditions found with protrusio acetabuli.

Following this idea, we have developed a noncontinuous spherical shell with a triple radius profile we have patented, that has been in successful clinical use for years with the EPF°-PLUS and PLUS-FIT° cups. EP-FIT PLUS° is a new generation of both cup systems with direct anchorage for the ceramic inserts and greater surface roughness.

When the shell is inserted, the triple radius profile causes a gap of approximately 2 mm in width between the roof of the shell and the hemispherically reamed acetabulum. The actual size of the gap does, however, vary depending on the quality and elasticity of the bone. The cup is oversized by 2–3% in the main anchorage area which allows tight contact in the peripheral shell region and a relatively low contact in the pole region, leading to favorable prestrain fixation of the acetabular wall and a correspondingly high primary stability.

These stress gradients, declining from the rim towards the dome of the acetabulum, result in a large percentage of the mechanical loading being transferred to the wall of the acetabulum. This is in contrast to hemispherical cups, where only a narrow area along the acetabular rim is subject to loading, and so may result in overloading of the bone in this area.

In summary, the EP-FIT PLUS has the advantage of reducing the risk of fracture for the acetabulum during implantation while maintaining excellent primary stability with a large bone contact surface along the acetabular wall.

Indications/ Contraindications

Indications

- All forms of arthritis
- Progressive loss of function of the hip joint as a result of a degenerative posttraumatic or inflammatory/rheumatic destruction of the joint
- Femoral head necrosis
- Fractures in the region of the femoral neck or hip joint
- Status following earlier operations such as osteosynthesis, corrective osteotomies, stiffening or joint replacement

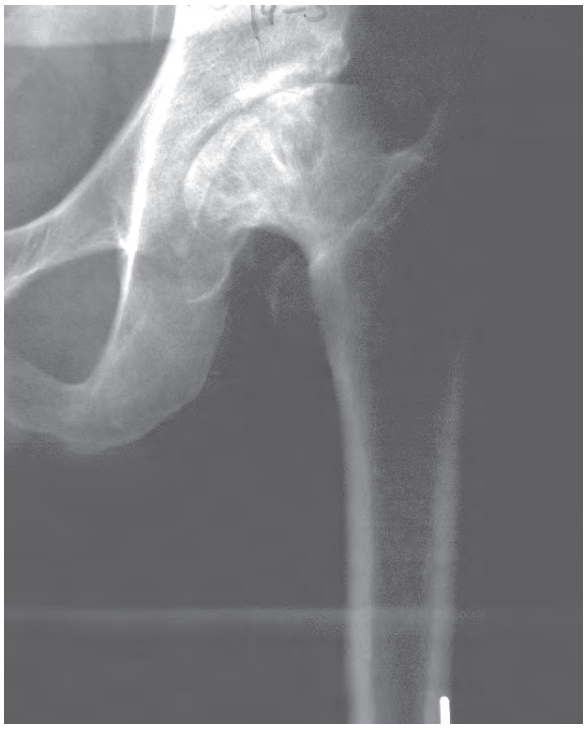
Contraindications

- Acute or chronic infections, local or systemic
- Severe damage to muscles, nerves or vessels that present a risk to the affected extremity
- Bone defects or poor bone quality endangering the stability of the implant
- Associated disorders that could interfere with the functioning of the implant (such as implant allergies, renal insufficiency, cardiac insufficiency (as a result of increased metal/ion concentration in the blood)

Comment

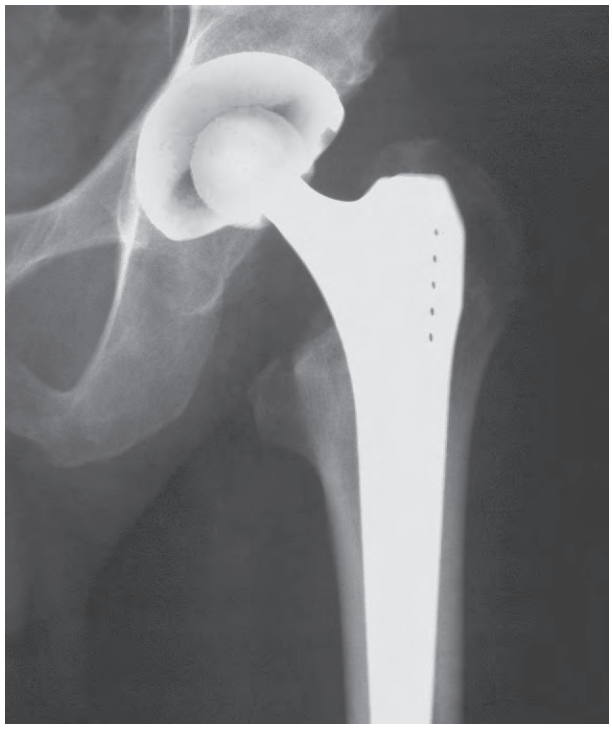
- Using hard-hard pairings, it is imperative to follow the specifications in the particular chapters
- The above-mentioned indications and contraindications apply to both primary interventions and revisions
- Sufficient cup sizes should be observed for revision surgery. For complex cases multi-hole cups can be used

Preoperative



Female patient with dysplastic coxarthritis.

Postoperative



EP-FIT PLUS° cup with SL-PLUS° stem in female patient with coxarthritis resulting from dysplasia. Restoration of the leg length.

Preoperative Planning

Using the x-ray templates (enlarged by 15%) the surgeon plans

- the assumed implant size;
- the ideal position of the shell in relation to the acetabular teardrop figure.

Note

It is only partially possible to precisely determine the exact size of the shell preoperatively using x-ray templates.

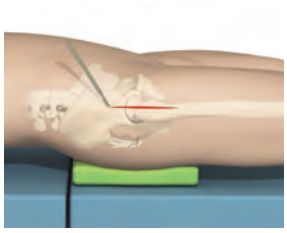
Generally the femoral head to be removed is a reliable guide for determining shell size. In a normal acetabulum the definitive size of the shell is 4–6 mm larger than the AP-diameter of the femoral head to be removed.

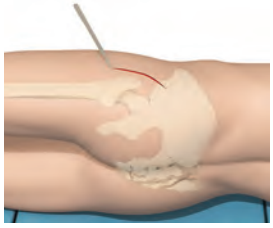
The correct shell size is then determined using the definitive reamer size or the suitable trial shell.

Note

Surgeons using minimally invasive surgical techniques should also please consult the following surgical instructions: postero-lateral approach (Lit. No. 1426); antero-lateral approach (Lit. No. 1483) and anterior approach (Lit. No. 1494).

Positioning and approach

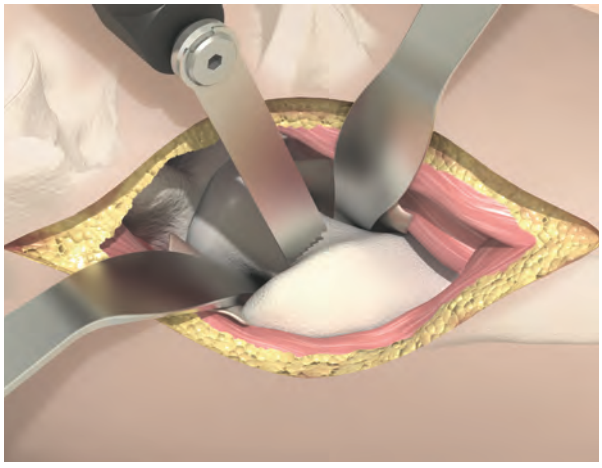




The operation is carried out with the patient either in a stretched supine position or with the patient on his/her side.

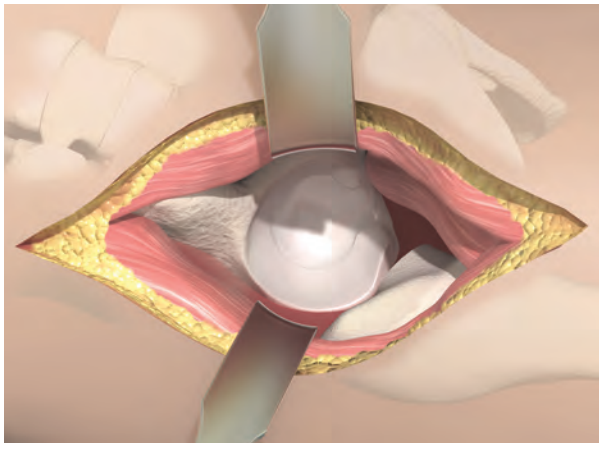
The approach should be either lateral or dorsolateral to the operating site depending on the preoperative patient data and/or the surgeon's preference.

Removing the femoral head



Osteotomy of the femoral neck in accordance with the preoperative planning for the respective stem system.

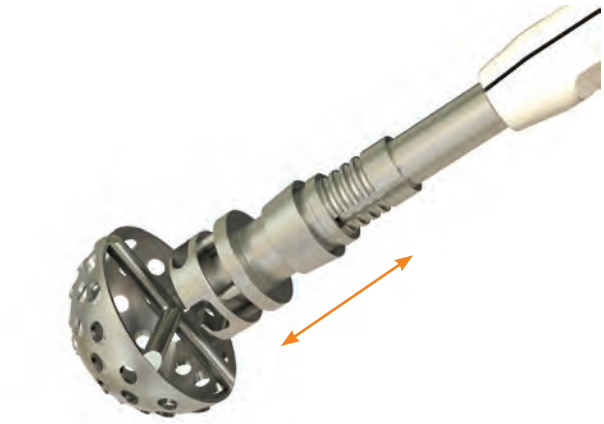
Preparation of the acetabulum



Opening and sufficient or full resection of the joint capsule.

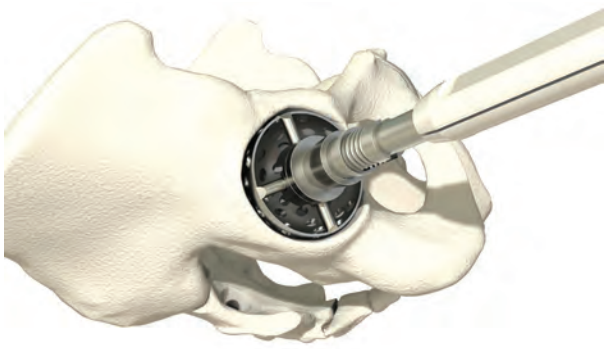
Exposure of the acetabulum to allow a good view and to ensure that there is sufficient space for the reaming instruments.

Assembling the reamer



Fit the reamer by pushing on the drive shaft and turning clockwise until it engages (snap mechanism).

Reaming the acetabulum



Ream the acetabulum using an original spherical Smith & Nephew Orthopaedics reamer, starting with the smallest size and working through the sizes until the layer of cartilage has been completely removed and the subchondral bone is bleeding evenly.

To press-fit a EP-FIT cup, the acetabulum should be reamed line-to-line or 1mm larger depending on bone quality and acetabular size. The cups are available in even sizes so the last reamer used should either be an even size for line-to-line or an odd size for 1mm overreaming.

Note

It is recommended to begin with a reamer size equal to or 2 mm smaller than the head size and that reaming is continued down to the base of the fovea acetabuli (teardrop figure).

Hard, sclerotic bone in the pole region should be removed as far as possible, but preserved on the periphery. If necessary, it may be advisable to choose a reamer that is 1 mm larger in relation to the cup size to avoid fissures and ensure optimal seating.

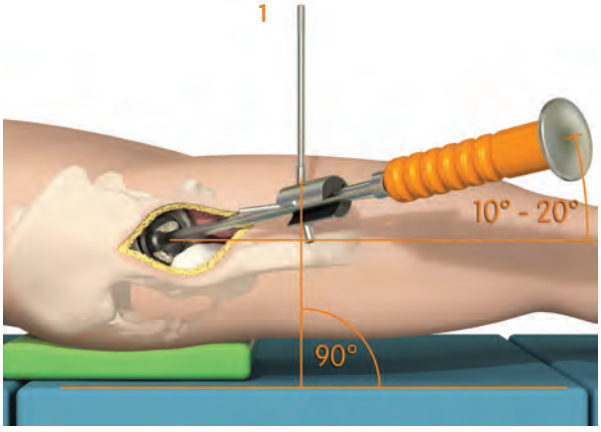
Avoid excessive reaming at the periphery, as this will result in excessive bone loss, especially at the anterior and posterior acetabular columns.

The bone dust in the last reamer can be used at a later point to fill the gap between the acetabulum and the implant.

Optionally, reamers are available in sizes going up in 1 mm increments (see page 32–35).

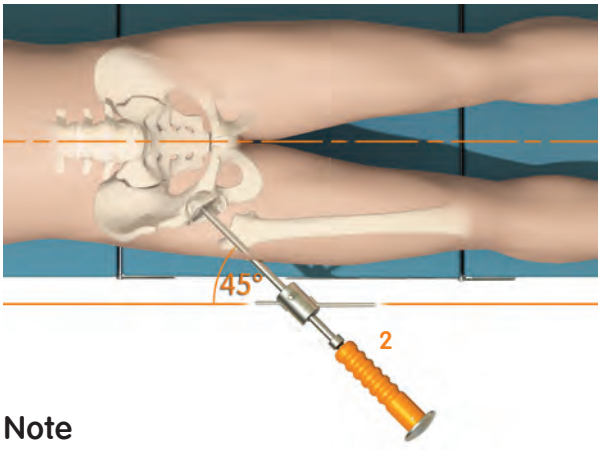
Determining the implant size with the trial shell

Screw the trial shell onto the shell inserter I (21000669 or 130707).



The alignment guide for shells (130728) or alternatively the sputnik (T17718)* may be used for orientation purposes relative to the cup position. The assembled alignment guide for shells is assembled onto the inserter.

The aim is an anteversion of 10°–20° and an inclination of 40°–50°. Align the inserter in such a way that rod (1) is perpendicular to the coronal plane and rod (2) is parallel to the patient. If the patient is in a supine position (see picture, here: example of a right hip) the lengthwise edge of the table can be used as a guide.



Insert the trial shell in the reamed acetabulum by pressing on the inserter (do not use an impactor).

Check the seating of the acetabulum. After screwing out the inserter the cup position and depth can be checked. Remove the trial shell with the inserter that has been screwed back on.

Note

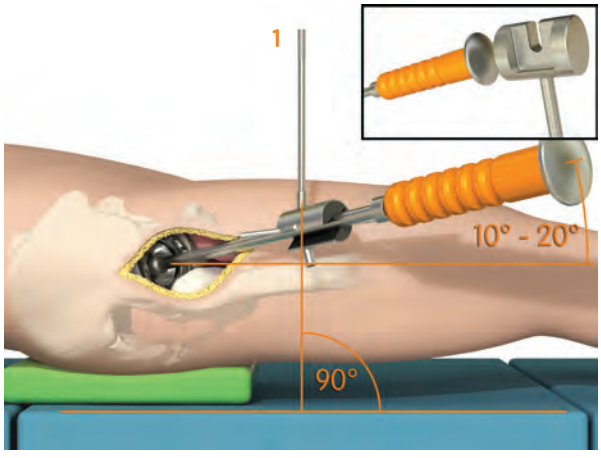
In contrast to the original implants the trial shells are not oversized. If the desired level of stability is not achieved, then the depth of the bone bed has to be increased (see «Reaming the acetabulum») or a trial shell one size larger should be selected.

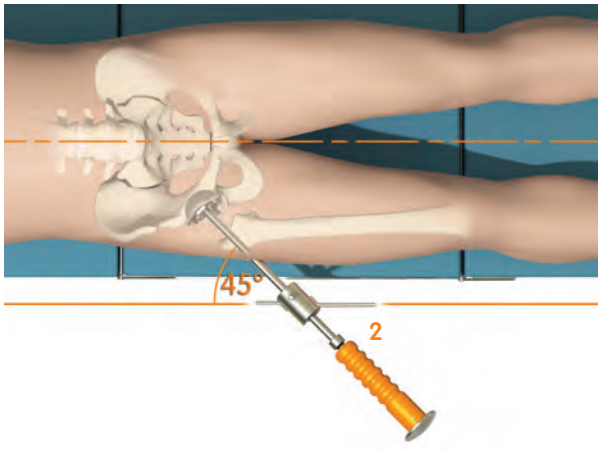
* The sputnik (T17718) or the MIA alignment handle (600671) can be used with the alignment rods (600673/600679) as an alignment instrument for use with the shell inserter I (21000669).

Implantation of the titanium shell

Bone chips from the last reaming step can be evenly distributed in the acetabulum to fill any possible defects.

Mount the shell, of predetermined size, on the shell inserter I (21000669 or 130707).





If necessary, mount the relevant alignment guide on the shell inserter.

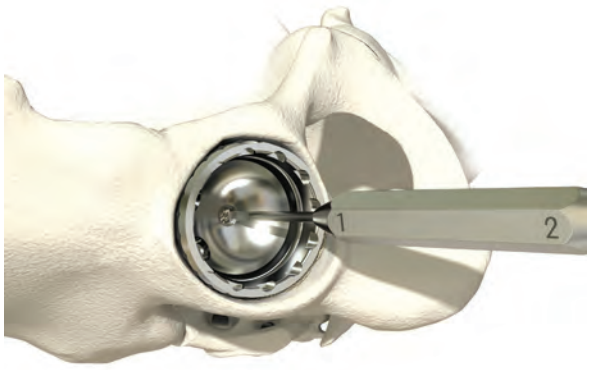
Position the cup shell in the acetabulum and align the shell inserter as described in «Determining the implant size with the trial shell». The inclination should ideally be 40°–50° and anteversion 10°–20° to achieve optimum results. In order to achieve the best result for each individual patient the positioning of the femoral component, sufficient stability, good bone contact and soft tissue tension should be taken into account for the final positioning of the cup. If there is a tendency for impingement and/or luxation, a steep inclination of the shell (over 50°) should be avoided. It may be advisable to use a reliable navigation system for positioning the cup, as this can greatly enhance the accuracy of positioning.

Any unused screw holes should be facing a caudal direction. Insert the implant into the acetabulum by impacting the handle of the inserter with the impactor hammer (130705).

Note

It is essential to observe the instructions on the use of ceramic and PE inserts (see pages 12 to 15).

Verification of position in the acetabulum

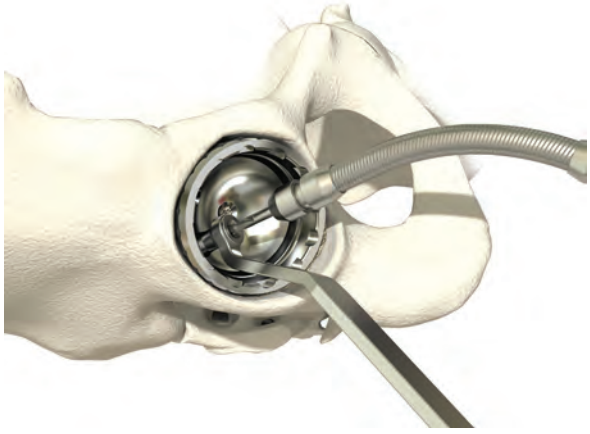


The distance (1-2 mm) between the implant and the base of the acetabulum can be measured through the apex hole using the test hook (130731).

Comment

Additional fixation of the EP-FIT PLUS◇ press-fit shell by screws is not routinely necessary, but may be required in certain circum-stances.

Fixation of the shell with screws



The procedure is as described on page 9, but the screw holes should be aligned in a superolateral position upon insertion of the shell.

Drill the intended holes using the drill guide (130847) and the flexible drill shaft (130490). Insert screws into the pelvis with the screwdriver (130710). A ventral or central position of the screws must at all times be avoided, as this could otherwise damage the vessels and nerves in the pelvis.

Note

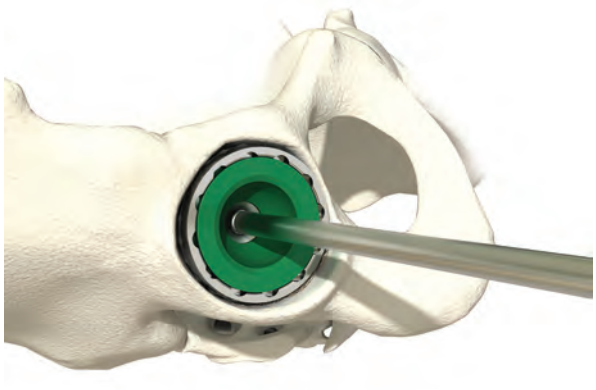
Only Smith & Nephew Orthopaedics cancellous bone screws (page 23) with a low head profile are to be used.

Determine the size with the trial insert (standard 130826–130839/hooded 130850–130857)

A trial insert system is available to determine the ideal insert – standard (0°) or hooded (15°) – and to assess the elevation of the hooded insert. These trial inserts should be used to simulate joint play and the range of motion and to determine whether the use of a hooded insert is beneficial. In difficult primary, and particularly revision procedures, the use of a trial insert is recommended in all cases.

Use the trial stem in the prepared femur (see corresponding surgical technique).

Disassemble the inserter (130818).



Screw the corresponding size of trial insert (standard or antiluxation) into the inner section of the seating instrument.

Insert the trial insert into the implanted shell. Unscrew the inner part of the inserter. Check the seating of the shell, reposition and adjust.

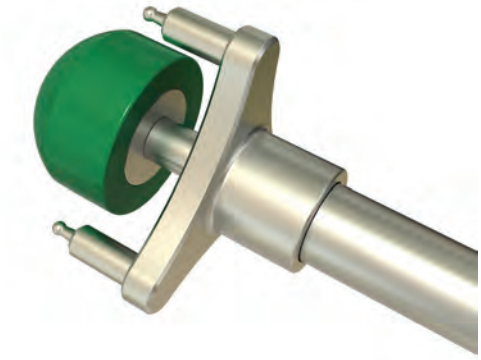
Screw the internal part of the seating instrument back into the trial insert, then loosen and remove it through a gentle tilting action.

Rinse the implanted shell thoroughly and carefully remove bone debris.

Note

The standard (0°) REXPOL / PE and ceramic inserts are offering a larger ROM vs. the hooded (15°) REXPOL / PE inserts.
The shoulder of the hooded insert is raised by 15° (measured from the center of the insert) which is used as a luxation protection and should be positioned in the direction in which there is the greatest risk of luxation. The hooded insert cannot, however, compensate for problems posed by a cup that is implanted at too steep an angle (>50°).

Insert the standard REXPOL or PE insert with the inserter/impactor



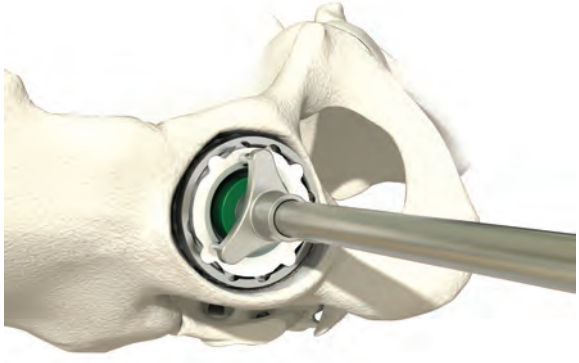
We recommend that the REXPOL / PE insert is inserted with the inserter (130818).

For this, reassemble the inserter.

Screw the adapter for the REXPOL / PE insert and the impactor head onto the inserter, pull back the inside of the inserter and fit the REXPOL / PE inserter onto the three studs.

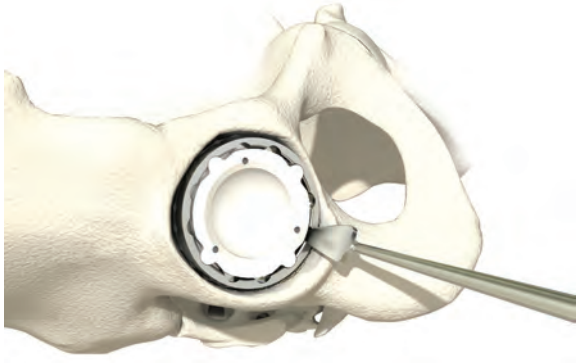
Note

The REXPOL◊ inserts Ø 36 mm, (11000309–11000311) are not compatible with the shell inserter impacting tool and should be inserted either manually or with the insert positioning instrument (1150126).



Finally fix the REXPOL / PE insert by impacting on the inside of the inserter in the shell. An audible change in the inserter sound confirms that the inserter is anchored in the shell.

Optional



Check the primary seating of the REXPOL / PE insert in the shell with the rasp.

Note

The REXPOL / PE insert may not be reused.

Peripheral osteophytes must be carefully removed to avoid ventral or lateral impingement, luxation tendency or a restricted range of motion.

Insert the hooded REXPOL / PE insert using the inserter/impactor

We recommend that the hooded REXPOL / PE insert is inserted with the inserter/impactor (130818).

The hooded REXPOL / PE insert is inserted with the inserter/impactor as described in «Inserting the standard PE insert with the inserter/ impactor».

Note

The shoulder position of the hooded REXPOL / PE insert can be adjusted in 30° increments..

Using the BIOLOX® delta ceramic insert Indications and Contraindications

As a rule all indications, contraindications and recommendations for total hip joint replacement with other bearings apply for the use of BIOLOX® delta cup inserts.

The following contraindications should also be taken into account for ceramic inserts:

- The inclination of the shell must not be under 40° or over 50°.
- The anteversion of the shell must not be under 10° or over 20°.
- If it is not possible to achieve the recommended cup position (e.g. insert replacement with a cup that demonstrates good osteointegration or in the case of dysplasia), no ceramic insert may be used. Standard or antiluxation inserts made of PE (PE/REXPOL) are a safe and reliable alternative for these cases.
- The risk of impingement should be avoided at all times.

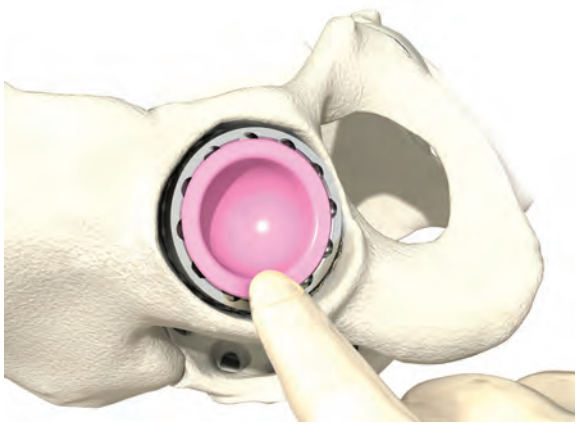
Implantation

Before a ceramic insert is implanted a trial insert should be used. Trial heads of the intended diameter must then be used intraoperatively to ensure the range of motion in all directions and to check joint stability. The artificial joint must not luxate on movement or subluxate as a result of impingement of the implant components or soft tissue.

The alignment guide (130728) should always be used with BIOLOX® delta ceramic inserts in order to obtain the necessary precision in cup positioning.

It is possible to use computer-assisted navigation systems intraoperatively to document and check the implant position; this can also provide accurate information on the range of motion.

The BIOLOX delta ceramic insert can be carefully placed in the cup by hand or with help of the insert positioning instrument (1150126) and pressed home. Alternatively the ceramic insert can be inserted with the insertion adapter ME/ CE as described on page 12.



Check that the insert is correctly seated in the metal shell. Check the two front surfaces of the insert and metal shell using your fingertips. The insert is correctly seated in the shell if the front surface of the insert is flush with the metal edge of the cup.
The ceramic insert is now fixed in position in the metal shell with a light axial blow using the inserter/impactor and an impactor head corresponding to the ball head diameter.

Note

Prevention of fracture of a ceramic component

A ceramic component may not be used or has to be removed if during surgery it becomes evident or there is reasonable evidence to suggest that it is damaged.

The subsequent insertion of a new ceramic inlay is only permissible if the internal cone of the shell is not damaged.

Revision of hip cups with broken ceramic insert

In case of acetabular cup revision in which a broken conically fixed ceramic insert is removed a ceramic insert must not be used again. The cone of the cup may have been damaged during the reoperation and would then no longer satisfy the requirements placed on plug connections for conically fixed ceramic inserts and would also increase the risk of a fracture.

PE inserts can be used as an alternative.

Revision of a broken ceramic ball head

Where the stem is left in situ, Smith & Nephew Orthopaedics recommends the use of a BIOLOX® OPTION (material: BIOLOX® delta) ball head with retractable metal sleeve (material: TiAl6V4) as a replacement for a revised ceramic ball head. The BIOLOX® OPTION system may be combined with all acetabular inserts from the BIOLOX® family and with all Smith & Nephew Orthopaedics Polyethylene/Rexpol◇ inserts.

If both components (the ball head and the insert) are made of ceramic material, both ceramic components need to be exchanged in case of revision following a fracture of one or both components.

Postoperative Treatment

Postoperative treatment depends on a range of factors (in particular the surgical approach, the stem prosthesis used, any concomitant diseases, and so on). Where there is good bone quality and stable primary implantation of both prosthetic components the use of walking aids is recommended for the first 6 to 12 weeks after surgery.

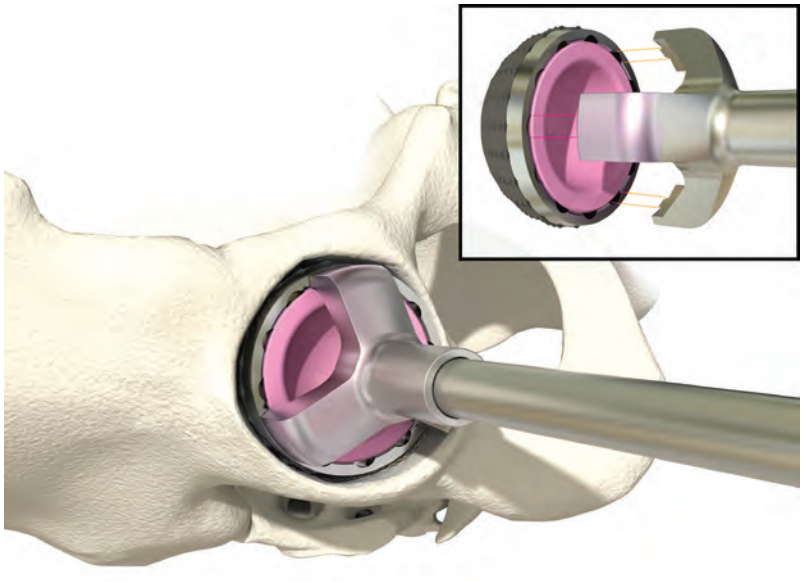
The extent of support must, however, be determined by the attending physician for each individual patient.

Revision of a Ceramic or Metal Insert

Screw the extraction instrument for metal/ceramic inserts onto the inserter/impactor (130818).

Carefully position the extraction instrument on the edge of the metal/ceramic insert. Adjust the three tips into the lateral recess in the shell – a perfect fit is achieved when it is not possible to turn it sideways.

Release and remove the metal/ceramic insert by impacting on the inserter/impactor.



Sterilization

Implants

All the implants described in this Surgical Technique are sterile when they are delivered by the manufacturer. Resterilization is not allowed.

Instruments

System components and instruments are not sterile when they are delivered. Before use they must be cleaned by the usual methods in accordance with internal hospital regulations and sterilized in an autoclave in accordance with the legal regulations and guidelines applicable in the relevant country. (For detailed information please refer to leaflet Lit. No. 1363).

The correct settings are given in the instructions for use issued by the autoclave manufacturer. Instrument manufacturers and dealers accept no responsibility for sterilization of products by the customer.

Urs Munzinger, Thomas Guggi, Bart Kaptein, Marion Persoon, Edward Valstar, H. Cornelis Doets

A titanium plasma-sprayed cup with and without hydroxyapatite-coating: a randomized radiostereometric study of stability and osseointegration.
Hip Int 2013 Jan-Feb;23

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Third-Generation Ceramic-on-Ceramic Bearing surfaces in Revision Total Hip Arthroplasty.
J Arthroplasty
Vol. 24 No. 8 2009

Jun-Dong Chang, Je-Hyun Yoo, Mina Hur, Sang-Soo Lee, Yung-Khee Chung, Chang-Ju Lee

Revision Total Hip Arthroplasty for Pelvic Osteolysis With Well-Fixed Cementless Cup.
J Arthroplasty,
Vol. 22 No. 7 2007 (1):33–9

Zwartelé RE, Brand R, Doets HC

Increased risk of dislocation after primary total hip arthroplasty in inflammatory arthritis – prospective observational study of 410 hips.
Acta Orthop Scand, 2004; 12

Adler E, Stuchin A, Kummer FJ

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J Arthroplast, 1992; 7:295–301

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Medium-term results with the Enhanced Press-Fit Cup in osteoarthrosis, rheumatoid arthritis and revision arthroplasty, 2003.

Engh CA, Griffin WL, Marx CL

Cementless acetabular components.
J Bone Joint Surg (Br) 1990; 72B:53–59

Lachiewicz PF, Suh PB, Gilbert JA

In vitro initial fixation of porous-coated acetabular total hip components. A biomechanical comparative study.
J Arthroplasty, 1989; 4:201–205

Lintner F, Zweymüller K, Brand G

Tissue reactions to titanium endoprostheses.
J Arthroplasty, 1986; Vol. 1, No. 3:183–95

McKenzie JR, Callaghan JJ, Pedersen P, Brown TD

Areas of contact and extent of gaps with implantation of oversized acetabular components in Total Hip Arthroplasty.
Clin Orthop, 1984; 208:127–136

Snorrason F, Kärrholm PJ

Migration of fully threaded acetabular components.
A roentgen stereo-photogrammetic analysis.
J Bone Joint Surg, 1990; 72B:647–652

Implants

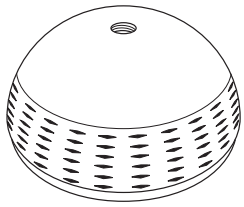
Shells

Titanium-Plasma Shell, without screw holes

SAP No.	Art. No.	Size
75003886	15300	40
75003887	15301	42
75003888	15302	44
75003889	15303	46
75003890	15304	48
75003891	15305	50
75003892	15306	52
75003893	15307	54
75003894	15308	56
75003895	15309	58
75003896	15310	60
75003897	15311	62

Titanium-Plasma Shells with HA (hydroxyapatite) coating, without screw holes

SAP No.	Art. No.	Size
75003913	15340	40
75003914	15341	42
75003915	15342	44
75003916	15343	46
75003917	15344	48
75003918	15345	50
75003919	15346	52
75003920	15347	54
75003921	15348	56
75003922	15349	58
75003923	15350	60
75003924	15351	62

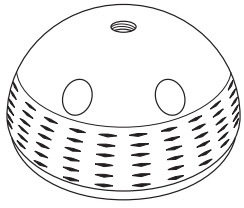


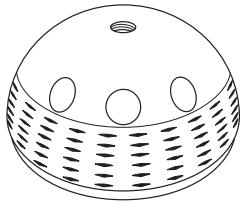
Titanium-Plasma Shells, with screw holes

SAP No.	Art. No.	Size	No. of holes
75003898	15320	40	2
75003899	15321	42	2
75003900	15322	44	2
75003901	15323	46	2
75003902	15324	48	2
75003903	15325	50	2
75003904	15326	52	2
75003905	15327	54	2
75003906	15328	56	3
75003907	15329	58	3
75003908	15330	60	3
75003909	15531	62	3
75003910	15532	64	3
75003911	15333	66	3
75003912	15334	68	3

Titanium-Plasma Shells with HA (hydroxyapatite) coating, with screw holes

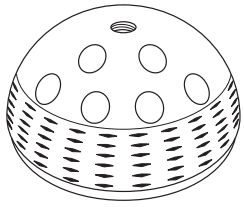
SAP No.	Art. No.	Size	No. of holes
75003925	15360	40	2
75003926	15361	42	2
75003927	15362	44	2
75003928	15363	46	2
75003929	15364	48	2
75003930	15365	50	2
75003931	15366	52	2
75003932	15367	54	2
75003933	15368	56	3
75003934	15369	58	3
75003935	15370	60	3
75003936	15371	62	3
75003937	15372	64	3
75003938	15373	66	3
75003939	15374	68	3





Titanium-Plasma Shells, multihole

SAP No.	Art. No.	Size	No. of holes
75003944	15410	56	6
75003945	15411	58	6
75003946	15412	60	6
75003947	15413	62	6
75003948	15414	64	6
75003949	15415	66	6
75003950	15416	68	6



Inserts

Note

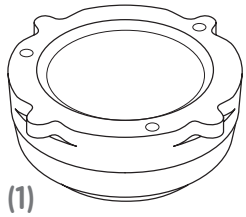
All cup inserts must only be used in combination with the appropriate cup systems approved by Smith & Nephew Orthopaedics AG.

PE inserts, standard, 0° (1)

SAP No.	Art. No.	Ø	Size
75003956	15462	22 mm	40–44
75003957	15463	22 mm	46
75003958	15464	22 mm	48
75003959	15465	22 mm	50–52
75003960	15470	28 mm	46
75003961	15471	28 mm	48
75003962	15472	28 mm	50–52
75003963	15473	28 mm	54–56
75003964	15474	28 mm	58–68
75003967	15481	32 mm	50–52
75003968	15482	32 mm	54–56
75003969	15483	32 mm	58–68

PE inserts, hooded, 15° (2)

SAP No.	Art. No.	Ø	Size
75003970	15486	28 mm	46
75003971	15487	28 mm	48
75003972	15488	28 mm	50–52
75003973	15489	28 mm	54–56
75003976	15490	28 mm	58–68
75003977	15491	32 mm	50–52
75003978	15492	32 mm	54–56
75003979	15493	32 mm	58–68



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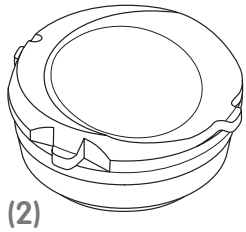


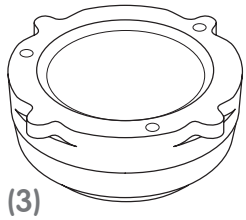
(2)

REXPOL°, standard, 0° (3)

SAP No.	Art. No.	Ø	Size
75004001	15570	28 mm	46
75004002	15571	28 mm	48
75004003	15572	28 mm	50–52
75004004	15573	28 mm	54–56
75004005	15574	28 mm	58–68
75004006	15582	32 mm	50–52
75004007	15583	32 mm	54–56
75004008	15584	32 mm	58–68
75000130	11000309	36 mm	50–52
75000131	11000310	36 mm	54–56
75000132	11000311	36 mm	58–68

REXPOL, hooded, 15° (4)

SAP No.	Art. No.	Ø	Size
75003983	15500	28 mm	46
75003984	15501	28 mm	48
75003985	15502	28 mm	50–52
75003986	15503	28 mm	54–56
75003987	15504	28 mm	58–68
75003989	15512	32 mm	50–52
75003990	15513	32 mm	54–56
75003991	15514	32 mm	58–68



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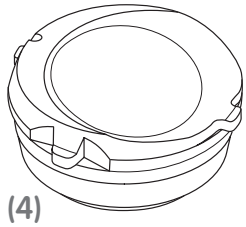


(4)

Ceramic inserts, BIOLOX® delta, 0°

SAP No.	Art. No.	Ø	Size
75001964	11000191	39/32 mm	46
75001965	11000192	41/32 mm	48
75001966	11000193	44/32 mm	50–52
75001967	11000194	48/32 mm	54–56
75001968	11000195	52/32 mm	58–68
75007457	66024	44/36 mm	50–52
75007458	66025	48/36 mm	54–56
75007459	66026	52/36 mm	58–68

Note

Only the combination of BIOLOX® delta / forte ball heads with cup inserts from BIOLOX® delta / forte is permissible. Any ball head from the BIOLOX® delta / forte family may be combined with any ceramic insert from the BIOLOX® family, providing the correct head or calotte diameter. Other components not authorized by Smith & Nephew Orthopaedics are not permissible.

As a rule, pairings with 32 mm ball heads or larger increase the range of motion and thereby reduce the risk of impingement and subluxation.

OXINIUM® ball heads

SAP No.	Art. No.	Ø	Cone	Length
71342200	71342200	22 mm	12/14	S/+0
71342204	71342204	22 mm	12/14	M/+4
71342208	71342208	22 mm	12/14	L/+8
71342803	71342803	28 mm	12/14	XS/-3
71342800	71342800	28 mm	12/14	S/+0
71342804	71342804	28 mm	12/14	M/+4
71342808	71342808	28 mm	12/14	L/+8
71342812	71342812	28 mm	12/14	XL/+12
71343203	71343203	32 mm	12/14	XS/-3
71343200	71343200	32 mm	12/14	S/+0
71343204	71343204	32 mm	12/14	M/+4
71343208	71343208	32 mm	12/14	L/+8
71343212	71343212	32 mm	12/14	XL/+12
71343603	71343603	36 mm	12/14	XS/-3
71343600	71343600	36 mm	12/14	S/+0
71343604	71343604	36 mm	12/14	M/+4
71343608	71343608	36 mm	12/14	L/+8
71343612	71343612	36 mm	12/14	XL/+12

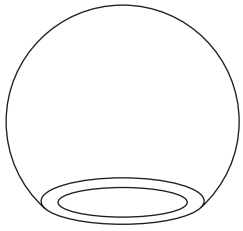
CoCr ball heads

SAP No.	Art. No.	Ø	Cone	Length
75004135	16051	28 mm	12/14	S/+0
75004136	16052	28 mm	12/14	M/+4
75004137	16053	28 mm	12/14	L/+8
75004138	16054	28 mm	12/14	XL/+12
75004139	16055	28 mm	12/14	XXL/+16
75004145	16061	32 mm	12/14	S/+0
75004146	16062	32 mm	12/14	M/+4
75004147	16063	32 mm	12/14	L/+8
75004148	16064	32 mm	12/14	XL/+12
75004149	16065	32 mm	12/14	XXL/+16

Ball heads

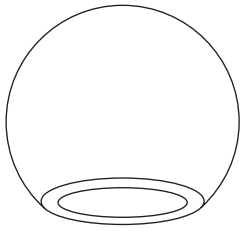
Ceramic Ball Heads, BIOLOX® delta

SAP No.	Art. No.	Ø	Cone	Length
75007451	66018	28 mm	12/14	S
75007452	66019	28 mm	12/14	M
75007453	66020	28 mm	12/14	L
75007460	66027	32 mm	12/14	S
75007461	66028	32 mm	12/14	M
75007462	66029	32 mm	12/14	L
75007463	66030	32 mm	12/14	XL
75007448	66015	36 mm	12/14	S
75007449	66016	36 mm	12/14	M
75007450	66017	36 mm	12/14	L
75007447	66014	36 mm	12/14	XL



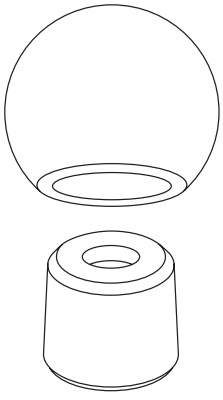
Ceramic Ball Heads, BIOLOX® forte

SAP No.	Art. No.	Ø	Cone	Length
75004169	16151	28 mm	12/14	S
75004170	16152	28 mm	12/14	M
75004171	16153	28 mm	12/14	L
75004172	16161	32 mm	12/14	S
75004173	16162	32 mm	12/14	M
75004174	16163	32 mm	12/14	L
75007441	66011	36 mm	12/14	S
75007442	66012	36 mm	12/14	M
75007446	66013	36 mm	12/14	L



Ceramic Ball Heads, BIOLOX® OPTION (for revisions)

SAP No.	Art. No.	Ø	Cone	Length
75007727	CE3849717693581	28 mm	12/14	S
75007728	CE3849717693582	28 mm	12/14	M
75007730	CE3849717693585	28 mm	12/14	L
75007729	CE3849717693584	28 mm	12/14	XL
75007731	CE3849717694581	32 mm	12/14	S
75007732	CE3849717694582	32 mm	12/14	M
75007734	CE3849717694585	32 mm	12/14	L
75007733	CE3849717694584	32 mm	12/14	XL
75007735	CE3849717696581	36 mm	12/14	S
75007736	CE3849717696582	36 mm	12/14	M
75007738	CE3849717696585	36 mm	12/14	L
75007737	CE3849717696584	36 mm	12/14	XL



Note

Before fitting any ball head onto the stem cone, it is essential to ensure that there are no foreign particles (bone/metal/cement) and that it is not damaged.

Cancellous bone screws, unsterile

SAP No.	Art. No.	Description	Ø	Length
75005904	25281	Cancellous bone screw	6,5 mm	20 mm
75005905	25282	Cancellous bone screw	6,5 mm	25 mm
75005906	25283	Cancellous bone screw	6,5 mm	30 mm
75005910	25287	Cancellous bone screw	6,5 mm	35 mm
75005907	25284	Cancellous bone screw	6,5 mm	40 mm
75005911	25288	Cancellous bone screw	6,5 mm	45 mm
75005908	25285	Cancellous bone screw	6,5 mm	50 mm
75005912	25289	Cancellous bone screw	6,5 mm	55 mm
75005909	25286	Cancellous bone screw	6,5 mm	60 mm

Cancellous bone screws, sterile

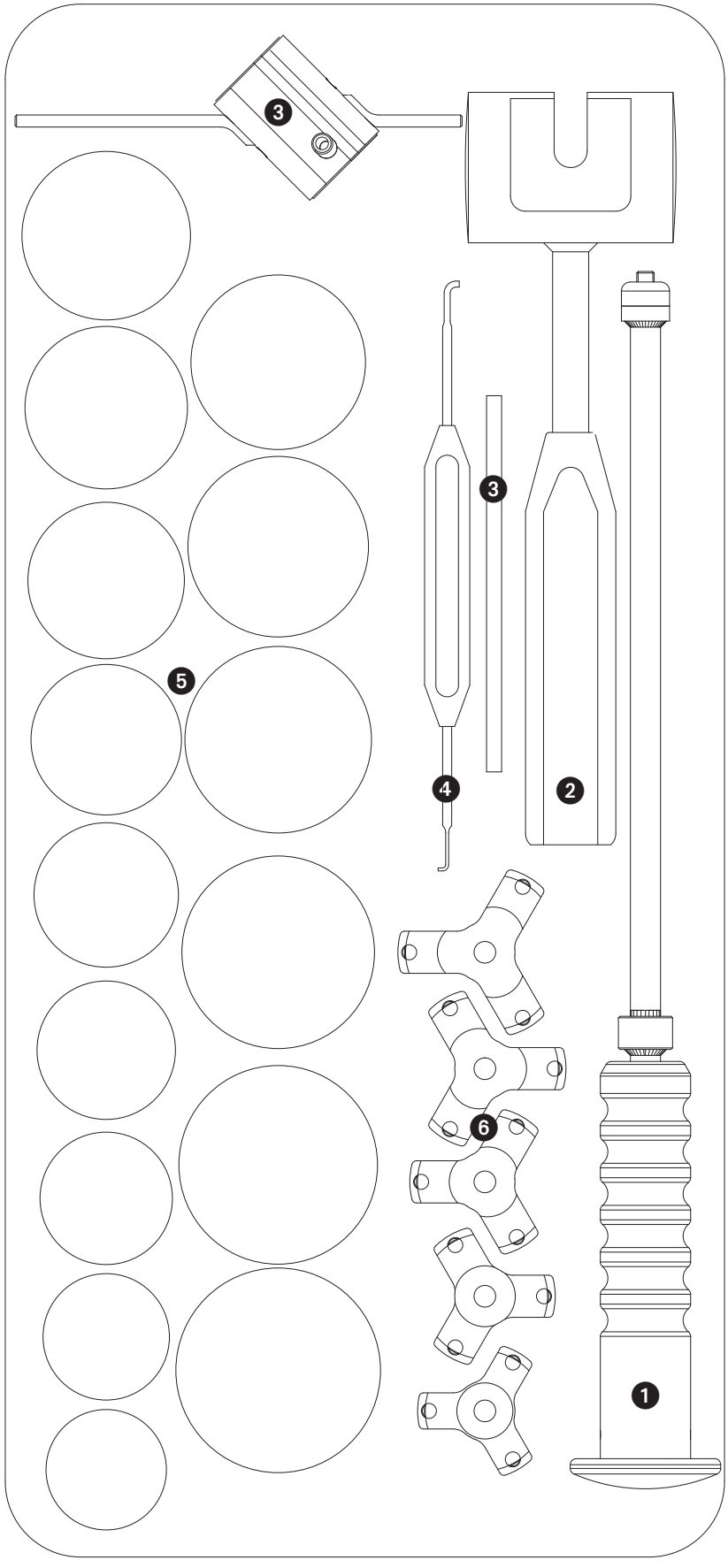
SAP No.	Art. No.	Description	Ø	Length
75006096	25502	Cancellous bone screw	6,5 mm	20 mm
75006097	25503	Cancellous bone screw	6,5 mm	25 mm
75006098	25504	Cancellous bone screw	6,5 mm	30 mm
75006102	25508	Cancellous bone screw	6,5 mm	35 mm
75006099	25505	Cancellous bone screw	6,5 mm	40 mm
75006103	25509	Cancellous bone screw	6,5 mm	45 mm
75006100	25506	Cancellous bone screw	6,5 mm	50 mm
75006104	25510	Cancellous bone screw	6,5 mm	55 mm
75006101	25507	Cancellous bone screw	6,5 mm	60 mm

Basis Case 1

Set SAP/Art. No.
75210194/0940019

1 A Basic Case Instruments and Trial Shells

	SAP No.	Art. No.	Description	Size
	75003499	**130994**	**Basic Case 1 (without cover)**	
	75003504	130999	Cover for EP-FIT PLUS° Cases	
1	75023796	21000669	Shell inserter I	
2	75003340	130705	Insertion/Extraction hammer	
3	75003355	130728	Alignment guide for shells	
4	75003357	130731	Measuring hook	
5	75003359	130734	Trial shell	40
	75003360	130735	Trial shell	42
	75003344	130712	Trial shell	44
	75003345	130713	Trial shell	46
	75003346	130714	Trial shell	48
	75003347	130715	Trial shell	50
	75003348	130716	Trial shell	52
	75003349	130717	Trial shell	54
	75003350	130719	Trial shell	56
	75003351	130720	Trial shell	58
	75003352	130721	Trial shell	60
	75003353	130723	Trial shell	62
	75003354	130724	Trial shell	64
	75003361	130736	Trial shell	66
	75003362	130737	Trial shell	68
6	75003373	130820	Extraction instrument for metal/ceramic inserts for 130818	46
	75003363	130794	Extraction instrument for metal/ceramic inserts for 130818	48
	75003364	130795	Extraction instrument for metal/ceramic inserts for 130818	50–52
	75003365	130796	Extraction instrument for metal/ceramic inserts for 130818	54–56
	75003366	130797	Extraction instrument for metal/ceramic inserts for 130818	58–68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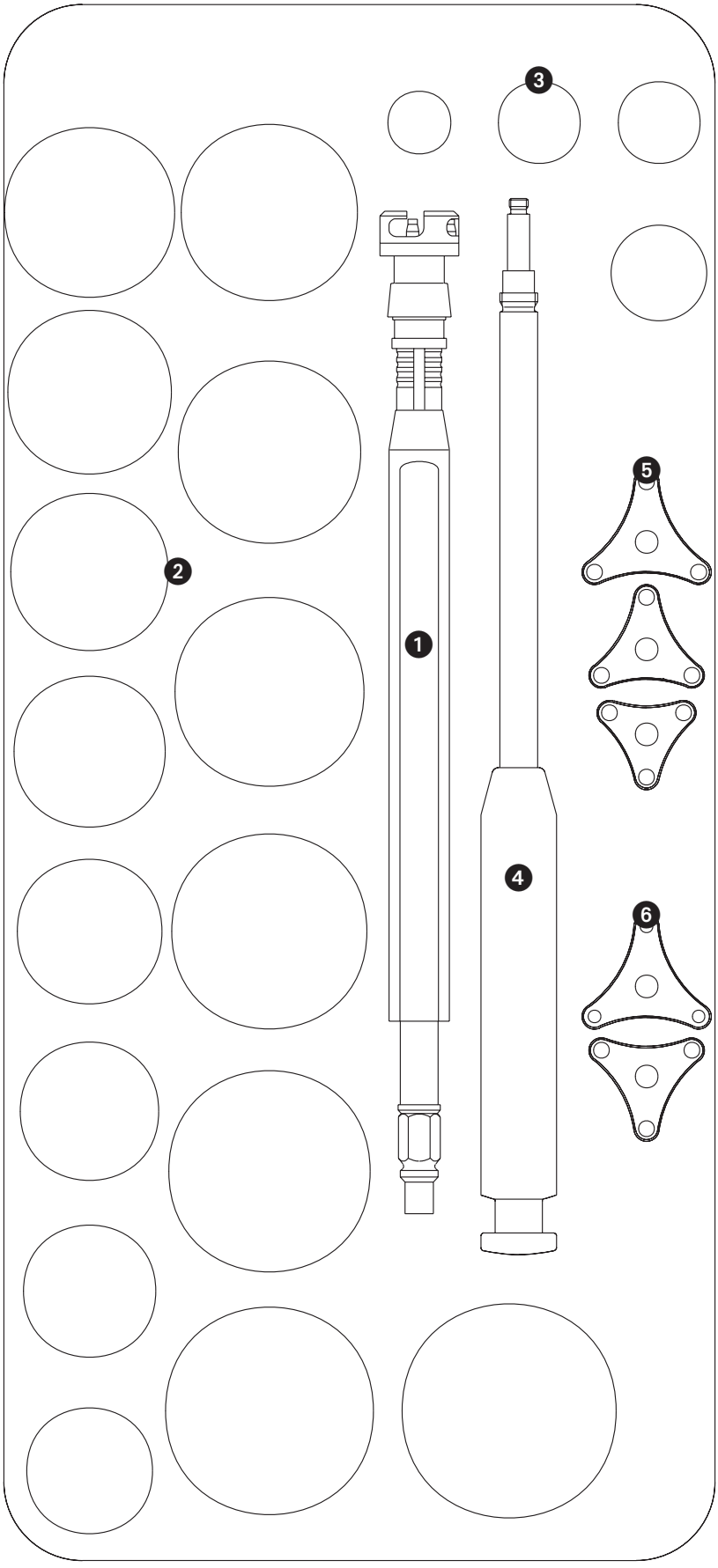
1 B Tray reamers (2 mm increments) and inserter/impactor for PE inserts

	SAP No.	Art. No.	Description	Size
	75003501	**130996**	**Tray for case 130994**	
1	75003405	130870	Drive Shaft, with Synthes coupling	
2	75003406	130871	Reamer	40
	75003408	130873	Reamer	42
	75003410	130875	Reamer	44
	75003412	130877	Reamer	46
	75003414	130879	Reamer	48
	75003416	130881	Reamer	50
	75003418	130883	Reamer	52
	75003420	130885	Reamer	54
	75003422	130887	Reamer	56
	75003424	130889	Reamer	58
	75003426	130891	Reamer	60
	75003428	130893	Reamer	62
	75003430	130895	Reamer	64
	75003432	130897	Reamer	66
	75003434	130899	Reamer	68
3	75003374	130822	Impactor head	22
	75003375	130823	Impactor head	28
	75003376	130824	Impactor head	32
	75003392	130848	Impactor head	36
4	75003372	130818	Inserter/impactor	
5	75003367	130802	Adapter for PE insert, standard for 130818	40–44
	75003368	130803	Adapter for PE insert, standard for 130818	46–48
	75003369	130804	Adapter for PE insert, standard for 130818	50–68
6	75003370	130806	Adapter for PE insert, hooded for 130818	46–48
	75003371	130807	Adapter for PE insert, hooded for 130818	50–68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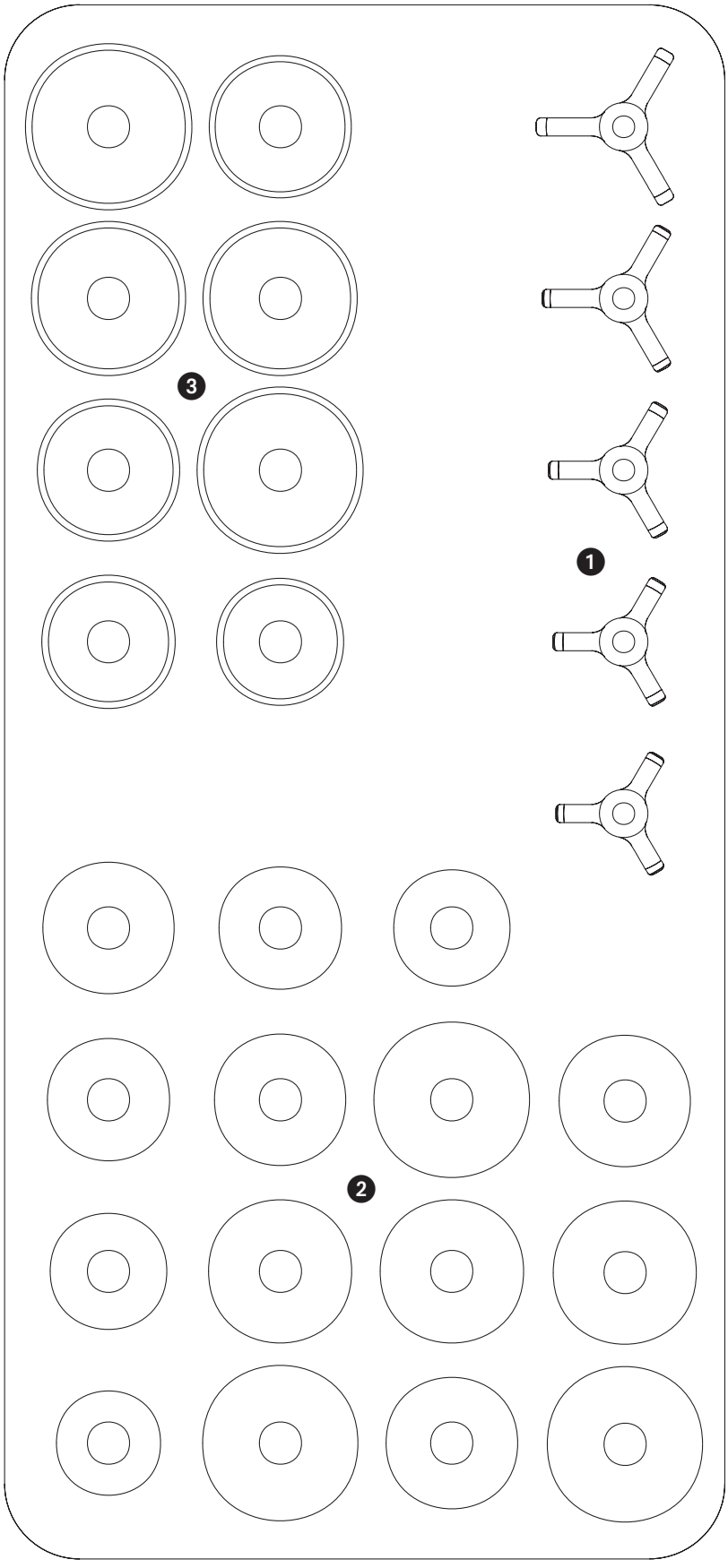
Basic Case 2

Set SAP/Art. No.
75210195/0940020

2 A Basic case trial inserts

	SAP No.	Art. No.	Description	Ø	Size
	75003506	**131001**	**Basic case II (without cover)**		
	75003504	130999	Cover for EP-FIT PLUS® cases		
❶	75003494	130989	Setting adapter ME/CE insert		46
	75003495	130990	Setting adapter ME/CE insert		48
	75003496	130991	Setting adapter ME/CE insert		50–52
	75003497	130992	Setting adapter ME/CE insert		54–56
	75003498	130993	Setting adapter ME/CE insert		58–68
❷	75003377	130826	Trial insert, standard	22 mm	40–44
	75003378	130827	Trial insert, standard	22 mm	46
	75003379	130828	Trial insert, standard	22 mm	48
	75003380	130829	Trial insert, standard	22 mm	50–52
	75003381	130830	Trial insert, standard	28 mm	46
	75003382	130831	Trial insert, standard	28 mm	48
	75003383	130832	Trial insert, standard	28 mm	50–52
	75003384	130833	Trial insert, standard	28 mm	54–56
	75003385	130834	Trial insert, standard	28 mm	58–68
	75003389	130838	Trial insert, standard	32 mm	46
	75003390	130839	Trial insert, standard	32 mm	48
	75003386	130835	Trial insert, standard	32 mm	50–52
	75003387	130836	Trial insert, standard	32 mm	54–56
	75003388	130837	Trial insert, standard	32 mm	58–68
	75007443	660121	Trial insert, standard	36 mm	50–52
	75007444	660122	Trial insert, standard	36 mm	54–56
	75007445	660123	Trial insert, standard	36 mm	58–68
❸	75003394	130850	Trial insert, hooded	28 mm	46
	75003395	130851	Trial insert, hooded	28 mm	48
	75003396	130852	Trial insert, hooded	28 mm	50–52
	75003397	130853	Trial insert, hooded	28 mm	54–56
	75003398	130854	Trial insert, hooded	28 mm	58–68
	75003399	130855	Trial insert, hooded	32 mm	50–52
	75003400	130856	Trial insert, hooded	32 mm	54–56
	75003401	130857	Trial insert, hooded	32 mm	58–68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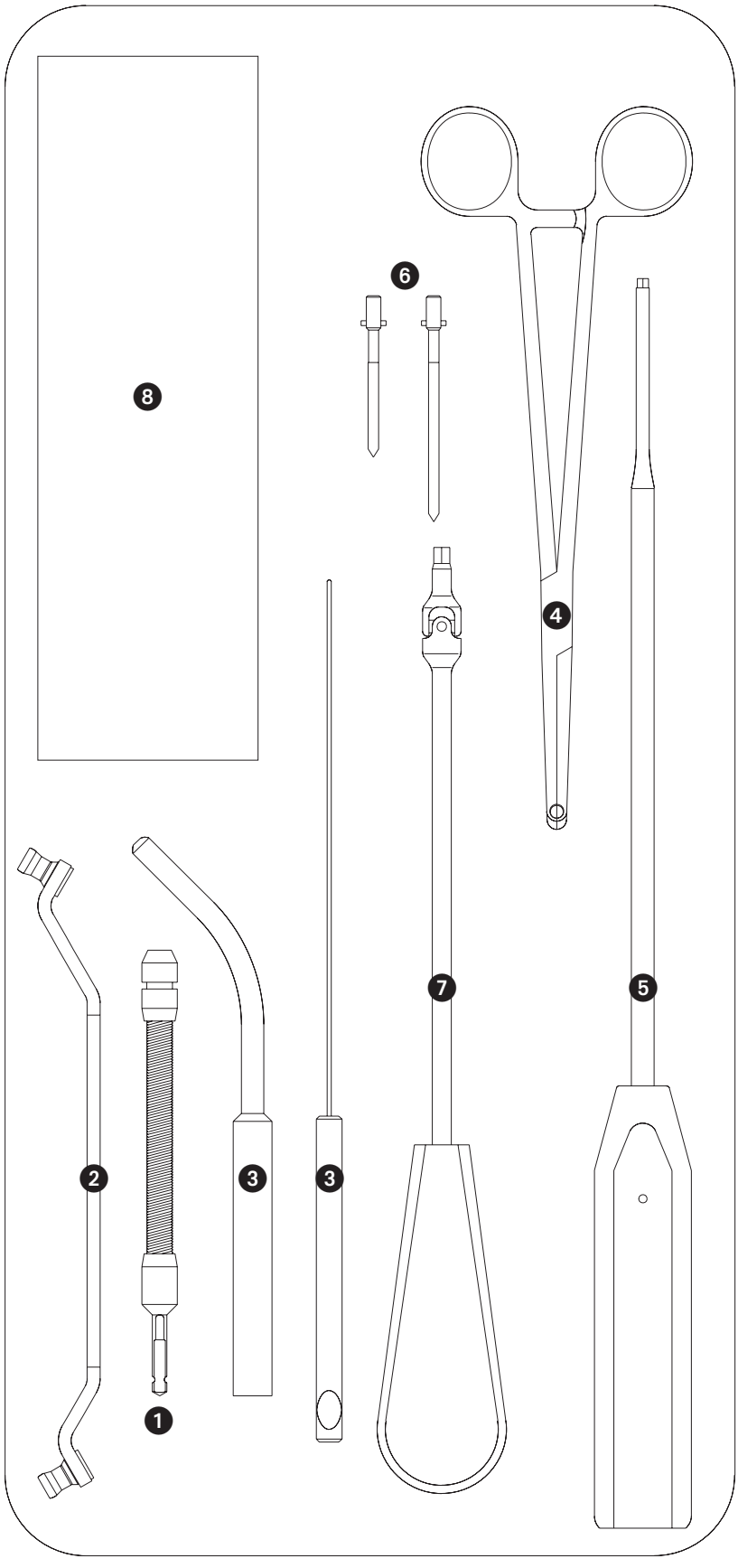
2 B Tray Accessories for bone screws

	SAP No.	Art. No.	Description	Ø	Length
	75003500	**130995**	**Tray for Case 131001**		
1	75003282	130490	Flexible drill shaft with quick coupling		
2	75003391	130847	Drill guide for screws	3,2 mm	
3	75003342	130708	Depth gauge for screws		
4	75003358	130732	Screw-holding forceps		
5	75003343	130710	Screwdriver, hexagonal	SW 3,5 mm	
6	75003283	130492	Twist drill	3,2 mm	56 mm
	75003284	130493	Twist drill	3,2 mm	70 mm
7	75003285	130496	Cardan screwdriver, hexagonal	SW 3,5 mm	
8	75003507	131002	Container for cancellous bone screws for insert 130995		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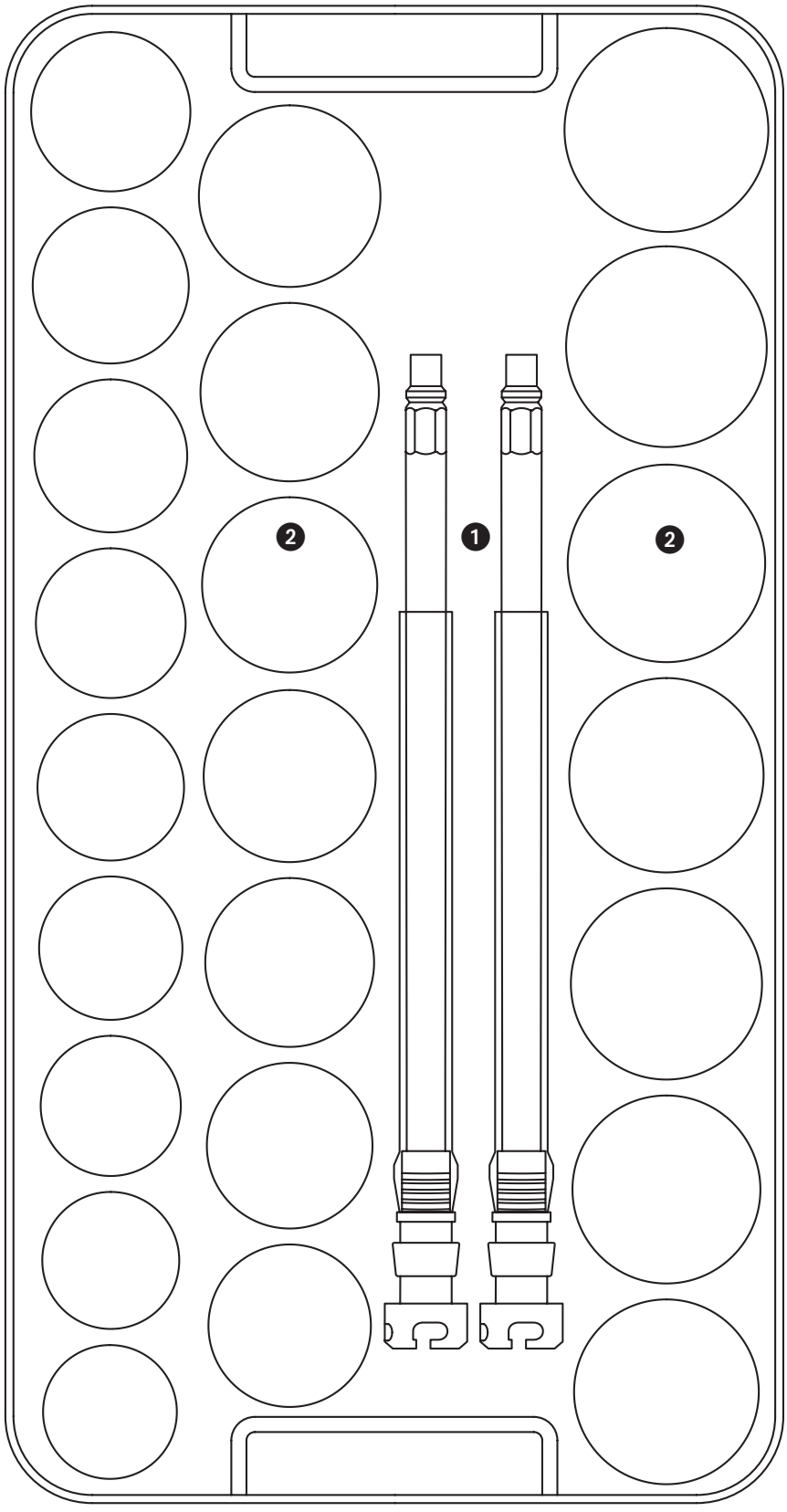
Optional Instruments

Set SAP/Art. No.
75210222/0940325

Standard reamers 1 mm/42-64

	SAP No.	Art. No.	Description	Size
	75100511		**Case reamer shells STD**	
	75007661	990019	Lid (Easytray)	
❶	75003405	130870	Drive shaft reamer (AO) x2	
❷	75003408	130873	Reamer	42
	75003409	130874	Reamer	43
	75003410	130875	Reamer	44
	75003411	130876	Reamer	45
	75003412	130877	Reamer	46
	75003413	130878	Reamer	47
	75003414	130879	Reamer	48
	75003415	130880	Reamer	49
	75003416	130881	Reamer	50
	75003417	130882	Reamer	51
	75003418	130883	Reamer	52
	75003419	130884	Reamer	53
	75003420	130885	Reamer	54
	75003421	130886	Reamer	55
	75003422	130887	Reamer	56
	75003423	130888	Reamer	57
	75003424	130889	Reamer	58
	75003425	130890	Reamer	59
	75003426	130891	Reamer	60
	75003427	130892	Reamer	61
	75003428	130893	Reamer	62
	75003429	130894	Reamer	63
	75003430	130895	Reamer	64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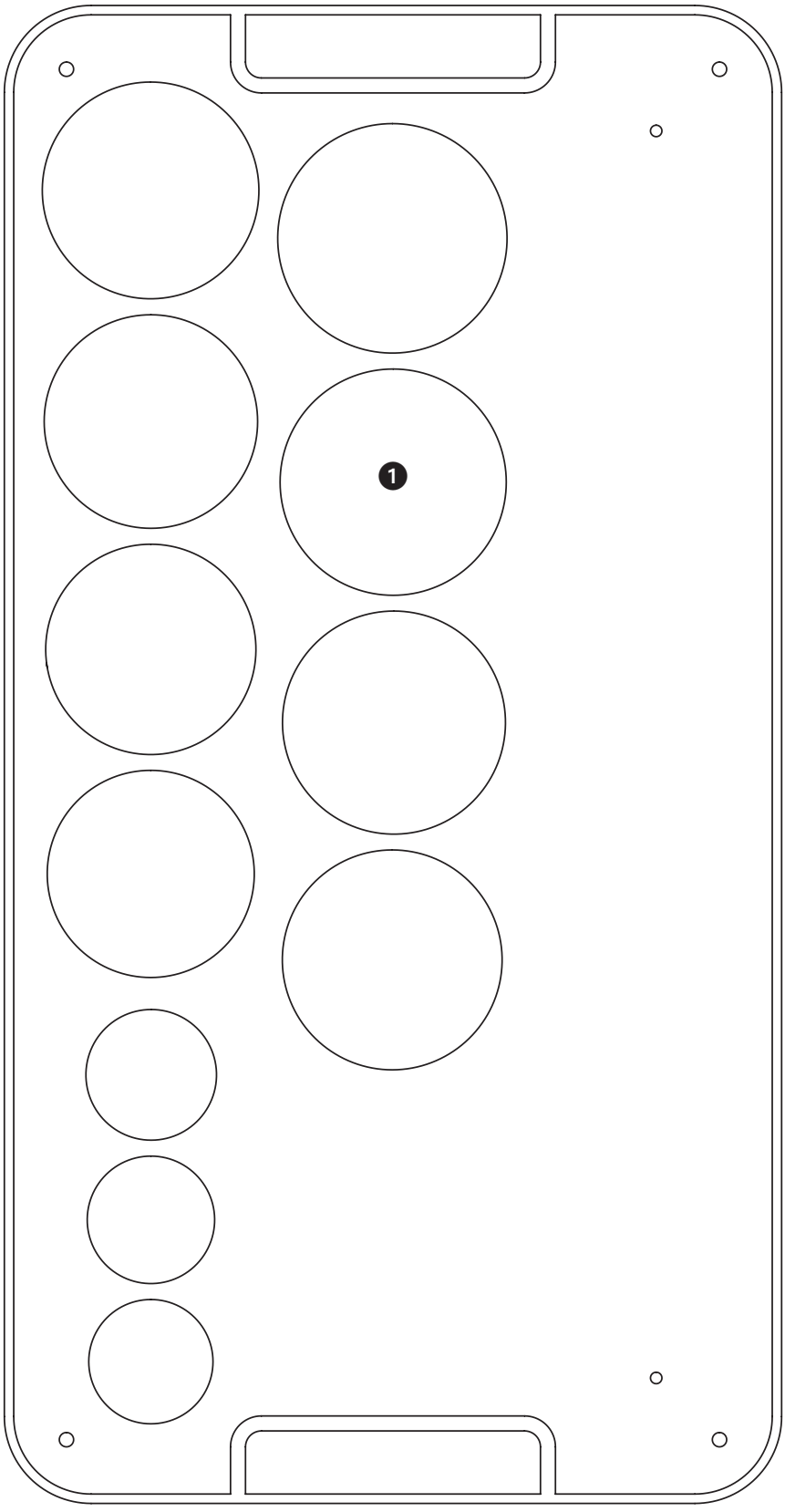
Optional reamers 1mm/39-41 & 65-72

Set SAP/Art. No.
75210247/0940332

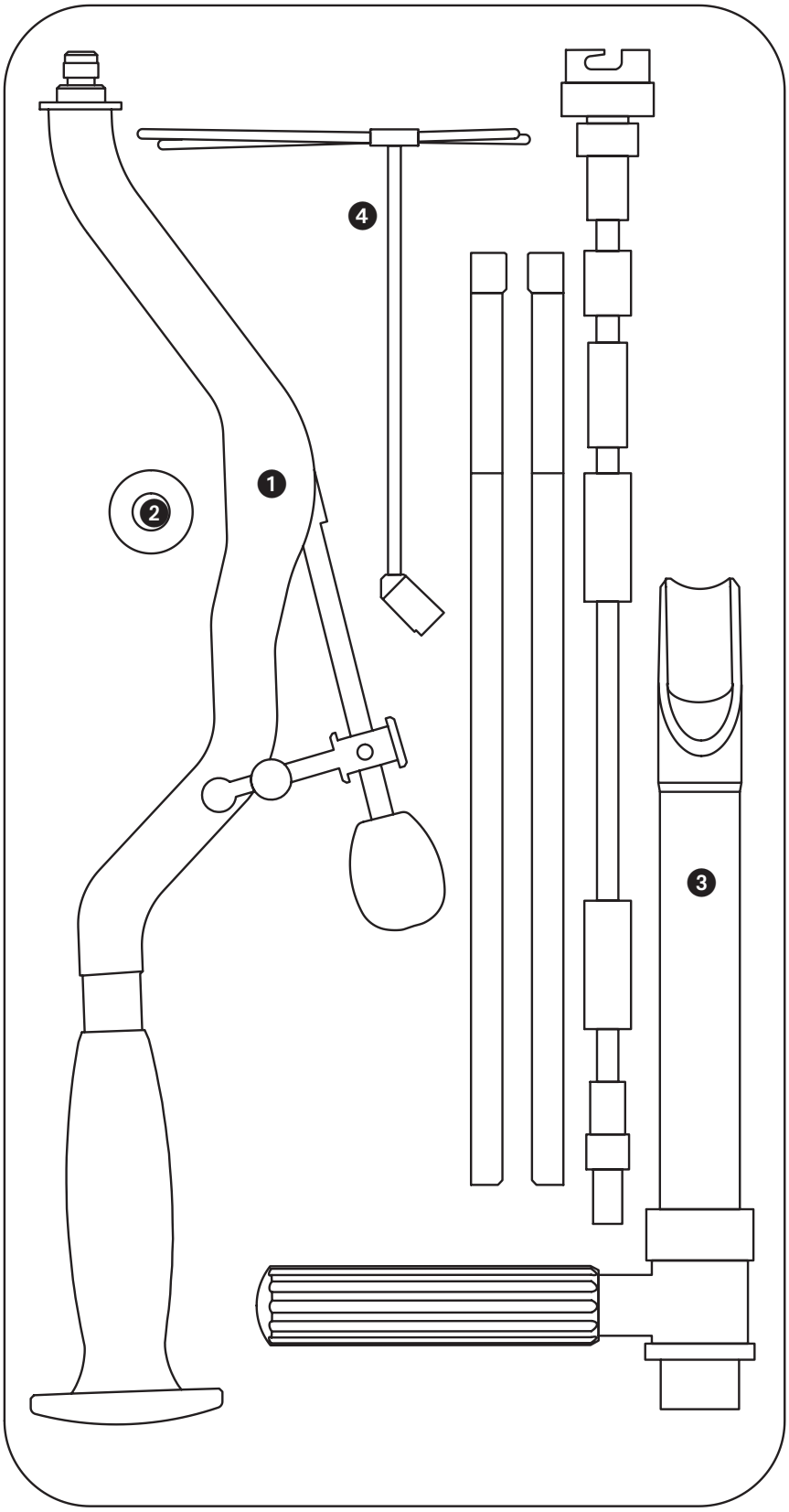
	SAP No.	Art. No.	Description	Size
	75100531		**Case reamer shells OPT**	
	75007661	990019	Lid (Easytray)	
❶	75023397	130867	Reamer	39
	75003406	130871	Reamer	40
	75003407	130872	Reamer	41
	75003431	130896	Reamer	65
	75003432	130897	Reamer	66
	75003433	130898	Reamer	67
	75003434	130899	Reamer	68
	75003487	130981	Reamer	69
	75003488	130982	Reamer	70
	75003489	130983	Reamer	71
	75003490	130984	Reamer	72


1

EP-FIT PLUS◇ MIS Instruments

Set SAP/Art. No.
75210229/0940021

	SAP No.	Art. No.	Description
	75100695		**EP-FIT PLUS MIS Tray**
	75007661	990019	Lid (Easytray)
1	75100363	21000679	Offset impactor shells
2	75100367	21000680	Offset impactor tip
3	75007256	600635	Drive shaft reamer with offset AO
4	75009600	17718	Sputnik (45° inclination, 20° anteversion)


4
1
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Instrumentation

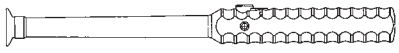
MIS Instrument Case

Set SAP/Art. No.
75200139/0941000

SAP No.	Art. No.	Description	Size
75007313	600931	MIA case for instruments	
75007661	990019	Easytray lid plastic	
75007314	600932	MIS tray for case 75007313/600931	
75007256	600635	Drive shaft reamer with offset AO	
75023446	41000109	MIS trial handle M6	
75007284	600671	MIA alignment handle	
75007285	600673	MIA alignment rod	225 mm
75007290	600679	MIA alignment rod 45°	225 mm
75007287	600675	MIA positioning ball	Ø 28 mm
75007288	600676	MIA positioning ball	Ø 32 mm
75007289	600677	MIA positioning ball	Ø 36 mm
75009225	SYS251200	Press-fit impactor NAV	
75009229	SYS251204	Impactor attachment EP-FIT	40-44
75009230	SYS251205	Impactor attachment EP-FIT	46
75009231	SYS251206	Impactor attachment EP-FIT	48
75009232	SYS251207	Impactor attachment EP-FIT	50+52
75009239	SYS251215	Impactor attachment EP-FIT	54+56
75009233	SYS251208	Impactor attachment EP-FIT	58-68
75009234	SYS251209	Impactor attachment EP-FIT	
75009261	SYS251239	Circlip pliers	
75009265	SYS251244	Key for impactor attachment	
75007291	600690	MIA pliers for trial insert	

Various instruments

SAP No.	Art. No.	Description
75003403	130868	Hudson drive shaft reamer
75003404	130869	Stryker drive shaft reamer
75007258	600637	Hudson drive shaft reamer with offset
75007257	600636	Stryker drive shaft reamer with offset
75002743	1150126	Insert positioning instrument
75018821	1150127	Suction cup (replacement)



Notes

Notes

Manufacturer
Smith & Nephew Orthopaedics AG
Oberneuhofstrasse 10d
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Switzerland

Contact

Lit. No. 01465-en (1258) Ed. 01/14

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