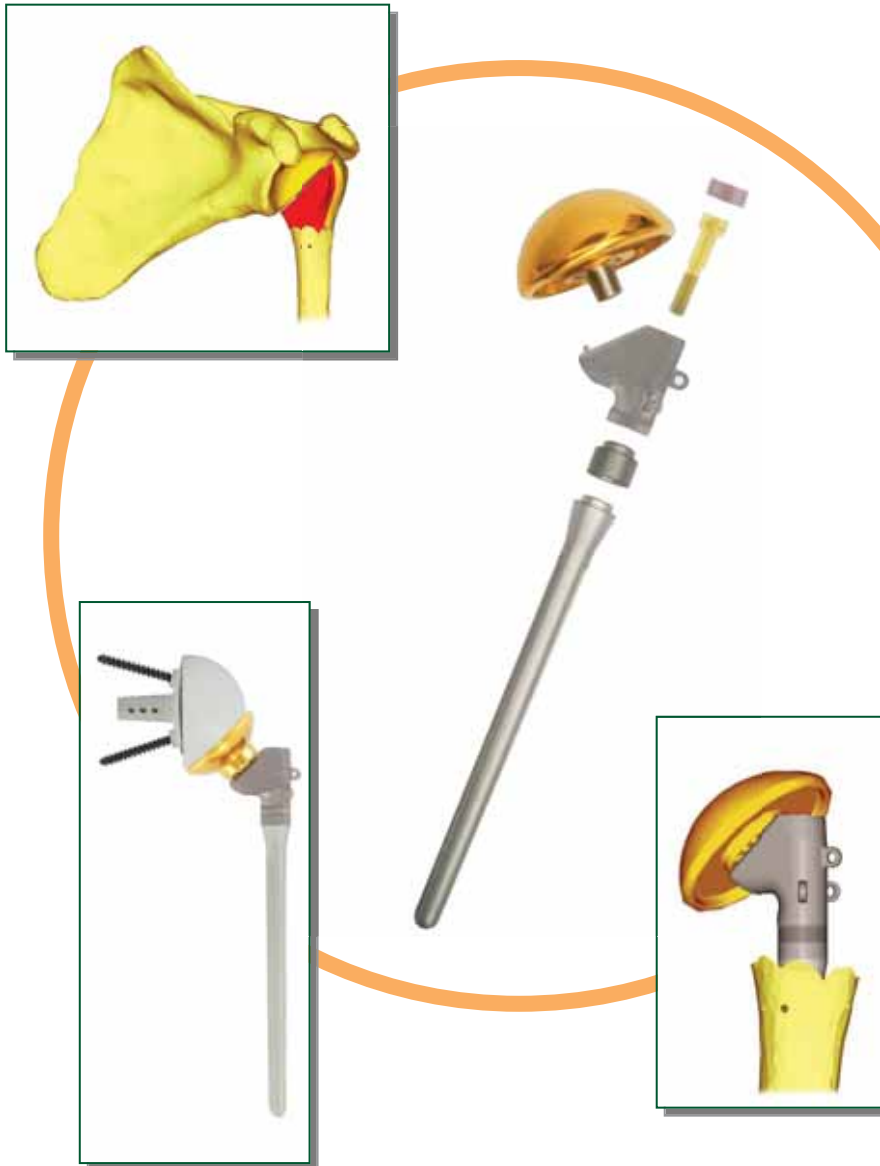


AGILON®

The modular shoulder system



Surgical Technique
trauma shoulder treatment



implantcast

AGILON®

The modular shoulder system trauma shoulder treatment

The following surgical technique was developed
in co-operation with Dr. N. Hellmers and
Dr. A. Betthäuser, Hamburg.



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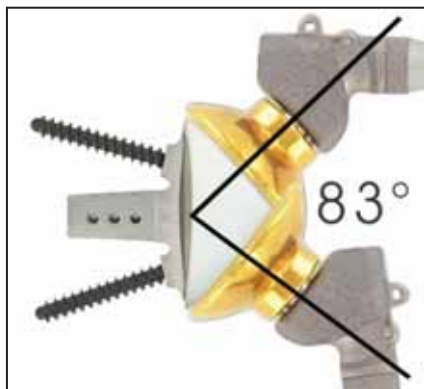
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Nota Bene: The described surgical technique is the suggested treatment for the uncomplicated procedure. In the final analysis the preferred treatment is that which addresses the needs of the individual patient.

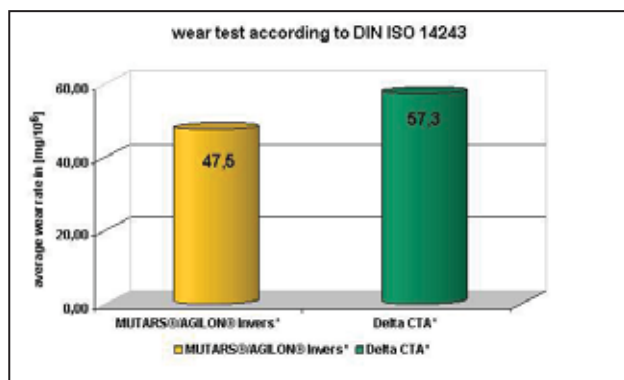
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Introduction


For the anatomical cementless glenoid, please refer to the surgical technique E,
 for the cemented PE glenoid please refer to the surgical technique with REF PEGLEOPE.
 The modular AGILON® shoulder system is designed to reconstruct a shoulder joint in case of a four fragment fracture of the humeral head and to treat arthrotic degraded joints. With the help of extension pieces the proximal length of the implant can be extended from 5 mm up to 17.5 mm in steps of 2.5 mm. The spur gearing enables the adaption of the rotation in 10°-steps after the implantation of the stem. The cemented stems are made of implavit® CoCrMo alloy. They are available in the lengths of 90 and 120 mm with diameters of 6, 8, 10 and 12 mm. The cementless stems in lengths of 60, 120, 180* and 240* mm in diameters from 10 to 16mm are made of implatan® TiAl₆V₄ alloy. Additional cementless 60mm stems are available in diameter 17 and 18mm and 180 and 240mm stems with a diameter of 9mm. The shoulder caps, the metaphyseal component and the extension pieces are made of implatan® TiAl₆V₄ alloy. To avoid material wear, all shoulder caps have a ceramic TiN-coating. The shoulder caps are available in 4 diameters, each with 3 thicknesses and can be inserted eccentrically in 12 different angles. Thereby the reconstruction of the original anatomy can be done more easily. For Cuff Tear Arthropathy 12 CTA caps are available in all diameters and heights. They are normally used as a hemi-arthroplasty after a failed inverse shoulder. Beside the slim trauma metaphyseal component, two primary metaphyseal components are available in the length 30 and 40 mm in an angle of 135° (refer to the omarthrosis surgical technique REF AGOAOOPE). Furthermore the system includes cementless anatomically shaped glenoid baseplates of size 2 and 3 in a short stem and a long stem version. This anatomical glenoid baseplates accept the PE-inserts and the glenospheres for the inverse option. So in case of a revision conversion from an anatomical to an inverse shoulder, the glenoid need not to be removed, only the PE-insert is replaced by a PE-glenosphere. The system includes inverse caps in 4 diameters and 3 heights each as well as the retentive inverse caps which offer a 3mm bigger overhang to minimize the risk of subluxation. For a cemented treatment, 3 PE glenoid components (size 2, 3 and 4) are available which can be combined with all cap sizes. * stems with two interlocking holes of ø4mm.


figure 1: range of motion (ROM)

The glenosphere is made of UHMW-polyethylene. Self-cutting, angle stable cancellous screws can be used with the glenoid to support the primary stability. The chosen design offers the advantage of high range of motion (fig. 1), because the thickness of the shoulder cap inverse is very thin.


figure 2: wear test results

Wear tests* (fig. 2) indicated less wear of this articulation compared to a system with metal glenosphere.


figure 3a

figure 3b

Switch-over from classic to inverse implant version

The x-rays demonstrate a case in which necrosis of the tubercle leads to a cranial humerus decentralization (fig. 3a). This situation made the switch-over to the inverse version necessary (fig. 3b).

Notice: For the primary treatment at least a extension piece 10mm should **always** be used. For a switch-over to an inverse prosthesis this piece can be removed to shorten the stem length. This leads to a lowering of the proximal implant components and optimizes the position of the prosthesis for the inverse prosthesis.

*wear test according to ISO 14243, IMA Institut Dresden, test reports A134/04 and A145/06.

Indications

- multifragmental comminuted fracture of the humerus head
- 3- and 4-fragment-fractures of the proximal humerus
- „head-splitting“-fractures
- dislocated fractures of the calotte
- humerus head impressions with more than 40% impressed bearing area
- stucked chronical luxations with a deep HILL-SACHS-lesion
- instability of the fracture after trial of osteosynthesis at 3- and 4-fragment-fractures (sec. dislocation, material relaxation)
- posttic humerus head necrosis

The modular AGILON® shoulder is advised especially for older patients with distinctive osteoporosis.

Contra-indications

- very young patients
- infections
- extensive acampsia of the shoulder at simultaneous lack of pain
- irreversible paresis of N. axillaris and Plexus brachialis



figure 3c and d: M/L view A/P view

Pre-operative planning

For the analysis of the fracture, x-rays in three sections vertical to each other are necessary. Preoperative the following x-rays have to be prepared::

- „true“-a.p.-exposure
- Y-exposure
- axial exposure
- „true“-a.p.-exposure of the opposite side with measuring gauge for the identification of the humerus length by „templating“ of the two x-ray-true-a.p.-exposures
- eventually for complex multifragmental fractures CT or MRT

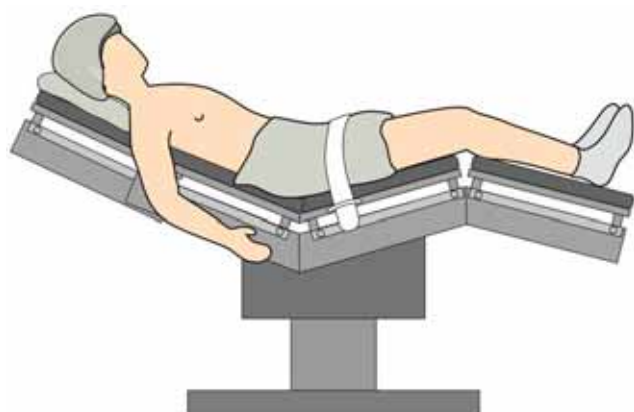
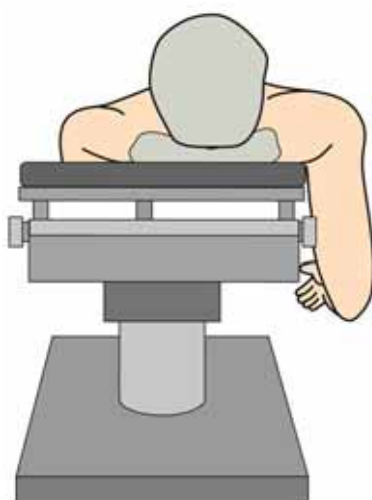
Pre-operative planning and precise surgical techniques are mandatory for optimal results. The instructions and the procedure given in the surgical technique to the system must be adhered to. Familiarity with the recommended surgical technique and its careful application is essential to achieve the best possible outcome.

Before surgery a surgical planning with regard to the dimensions of the prosthetic model and the positioning of the implant components in the bone has to be carried out by the surgeon.

For this purpose, x-ray templates are available:

Digital templates: Digital templates are included in the data base of the common planning systems. For missing templates, please contact the provider of the planning software and request for these templates.

Radiographic templates: Alternatively radiographic templates are available in various scale factors, which can be obtained from your local representative (fig. 3c and 3d).


figure 4a

figure 4b

Surgical Technique for the implantation of the AGILON® prosthesis component

Bedding of the patient

The patient should be bedded in the „Beach-chair“-position (fig. 4a and fig. 4b) at the edge of the table to dislocate and extend the arm freely. A movable side table for the forearm enables a stable rotation control and bedding for the forearm.

Important information

Prior to surgery the following should be ensured:

- all needed components are available during surgery. An adequate number of various implant components should be available for surgery. It should be determined whether the implantation should be done with or without the use of bone cement.
- all instruments for the implantation are present and are matching the correspond implants. The insertion instruments must be adapted to the implant. The implants may only be used with the instruments of the implantcast GmbH. An exception are exclusively the standardized instruments used during surgery.

Deltoideo-pectoral access

Perform the deltoideopectoral skin incision (fig. 5) from the top of the coracoid, following the front edge of the deltoideus, straight to the humeral beginning of the M. deltoideus.

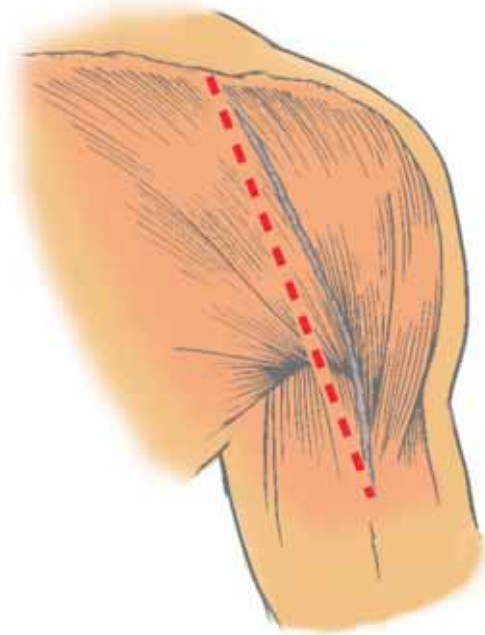


figure 5

After the skin incision and mobilization of the lateral skin flap, undertake the incision of the fascia between M. pectoralis and M. deltoideus in the Sulcus deltoideo-pectoralis by protection and preparation of the V. cephalica laterally (fig. 6).

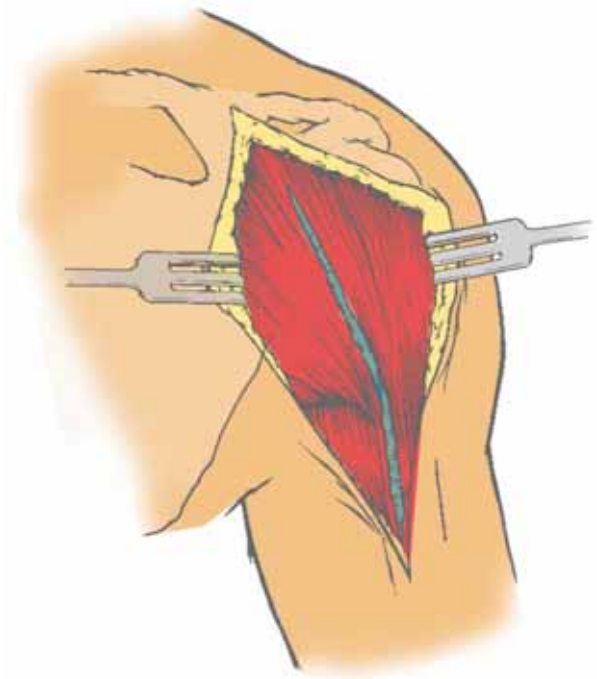


figure 6

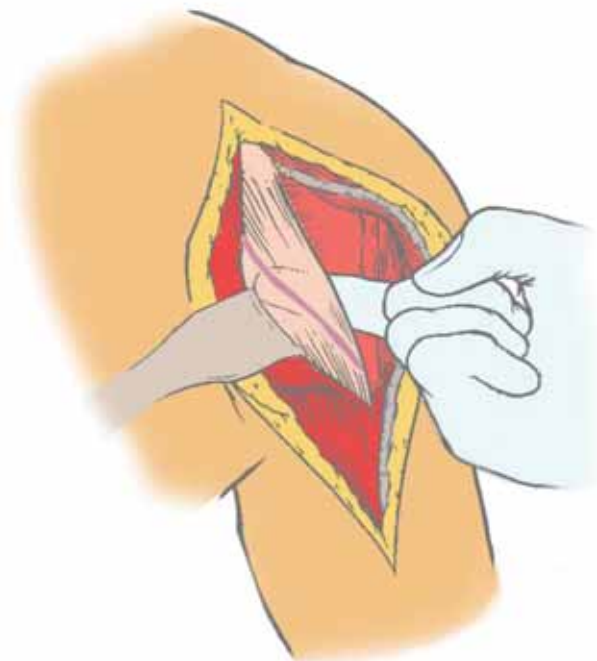


figure 7

Vertical incision of the clavi-pectoral fascia between the long and short biceps fiber up to the Lig. Coracoacromiale. Mobilization of the coracobrachial fiber leg with Caput breve of the M. biceps brachii and the M. musculobrachialis to medial by holding away with the Roux-hook (fig. 7).

Palpation of the N. musculocutaneus and keeping aside together with the fibers. Identification and illustration of the N. axillaris at the lower edge of the M. subscapularis (fig. 7) to avoid iatrogenic damages at the further preparation. It must be protected during the whole operation.

The long bicep fiber helps for the identification of Tub. Minus and Majus.

Entering through the fractured Tubercula by Incision above the biceps fiber in proximal direction up to the Lig. Coracoacromial and splitting of the rotator cuff in interval between Subscapularis and Supraspinatus (fig. 8a and 8b). If possible the biceps fiber should be attached. If the biceps fiber is damaged it has to be armed and later it has to be fixed transosseus at the stem.

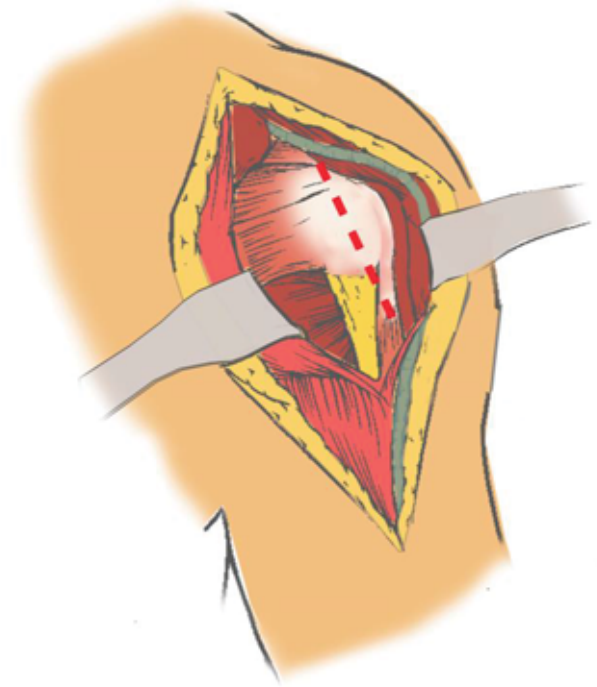


figure 8a

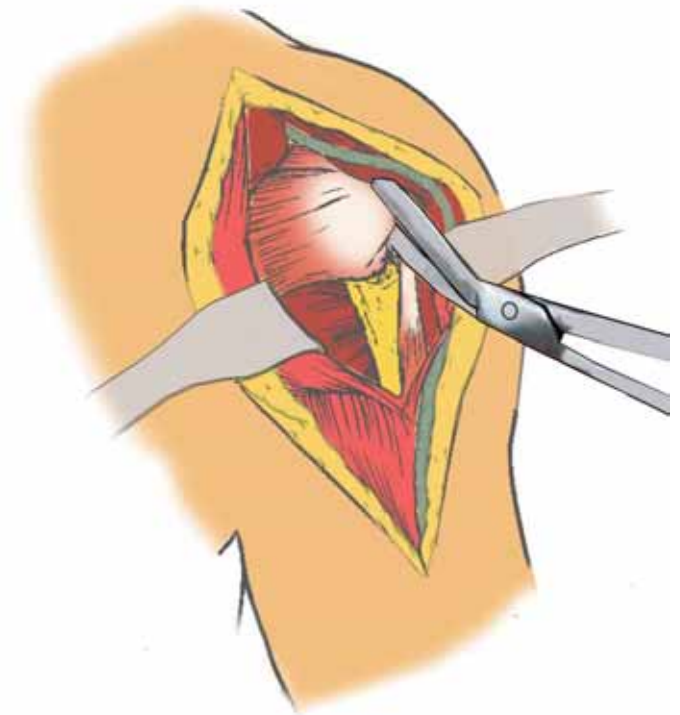


figure 8b

Exposure of the fracture

Preparation of the head fragments and the adherent segments of the rotator cuff.

At isolated Tub. Majus- and Tub. Minus-fragment caused by fracture, mobilization begins at the M. subscapularis including the Tub. Minus. It is armed with retention stitches at the beginning of the Tub. Minus and retracted to medial. Following the same procedure with the Tub. Majus with parts of the rotator cuff by attaching the fibers at the bony changeover and retracting to lateral (fig.9a and 9b).

After finishing these points the view to the head calotte is free. The often flat formed but compact head calotte is often luxated or dorsal or medial stuck. It has to be removed carefully and kept for the determination of the dimension of the calotte and also for having spongiosa bone.

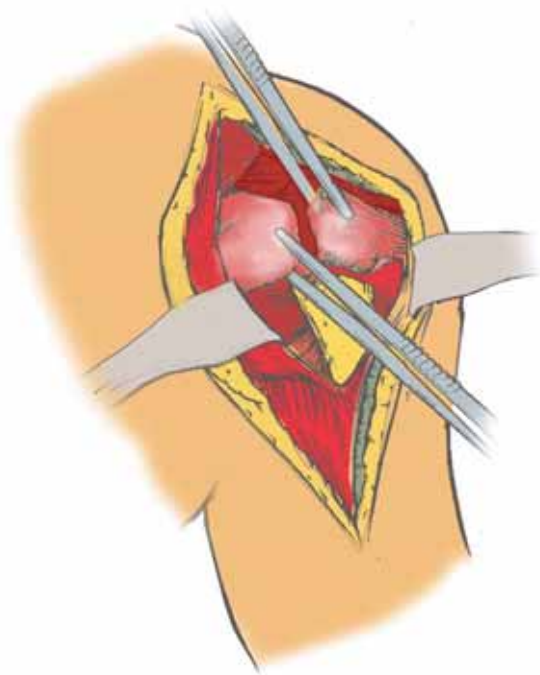


figure 9a

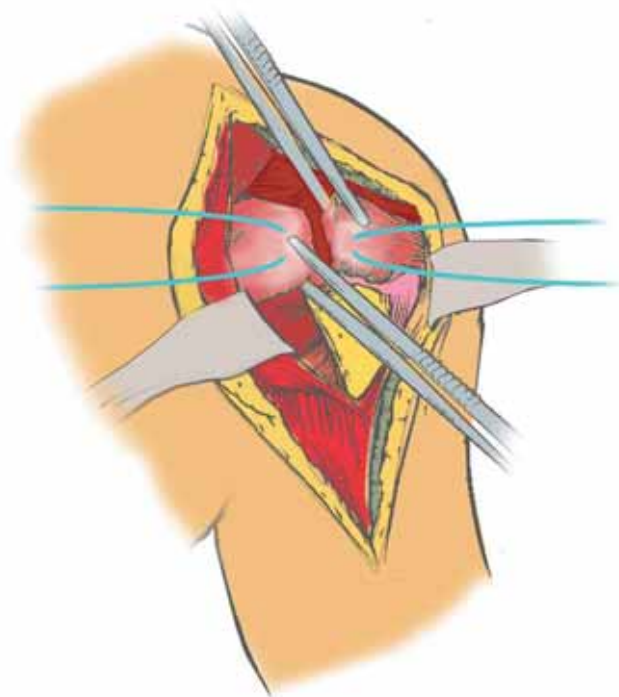


figure 9b

Preparation of the medullary cavity

The humerus stem is exposed distal to the fracture with sufficient length and illustrated with bone forcipes. The end of the stem has to be cleaned. In order to have good access to the medullary cavity, the forearm is adjusted with the table to position the upper arm in abduction and vertical position.

Please perform the reaming of the medullary cavity manually by the use of the T-handle and the adapter.

Use of cemented stems

With adequate reamers from 7 – 13mm (container 7) in steps of 1mm or 8-16mm (container 2) the medullary cavity has to be reamed up to the desired size (2 mm bigger than the designated diameter of the cemented stem planned length (optional 90 or 120 mm, see marking at the reamer) (fig. 10).

Use of cementless stems

For cementless fixation the cavity should be reamed to the diameter and the lengths (60mm or 120mm) of the planned cementless stem.

Notice: The regular loan shipment includes onl the cementless stems of the lengths of 60mm and 120mm. If you plan to use the stems of 180 and 240mm lengths these items have to be ordered separately.

For the suture, drill holes are drilled underneath the edge of the fracture into the humerus before implanting the stem. Following non absorbable high-strength suture material is attached to the stem for vertical refixation (fig. 11).



figure 10



figure 11

Implantation of the stem

After preparing the medullary cavity for the cementation a cement stop has to be inserted with the adequate instrumentation. Alternatively a cement stop of spongiosa bone from the humeral head can be inserted into the medullary cavity.

Now the height of the prosthesis can be planned. The tubercles have to be repositioned around the stem impactor instrument that is in the stem. The expected height of the metaphyseal component can be seen on the stem impactor and can be brought in relation to the height of the tubercles. The laser markings have a distance of 5mm, so the second marking shows the height of the metaphyseal component, if 10mm extension sleeve is used. The slot between the impaction sleeve and the impactor shows the height, if only a metaphyseal component is used (i.e. inverse shoulder) (fig. 12a).

Then bone cement is placed in the medullary cavity and the selected stem with stem impactor and impaction shell is inserted up to the marking (fig. 12a). If possible cemental leavings should be removed in soft condition. Take care that the tothing for the distance shell or the metaphyseal component is free of cement (fig. 12b).

Cementless implantation

To place the cementless stem, please use the stem impactor and the impactor sleeve to attach the stem of the correct length and diameter. The diameter of the cementless stem used should be the same as the last drill used.



figure 12a



figure 12b

Height and retrotorsional determination

After hardening of the cement, screw a guide rod on the implanted stem. Pull the preoperative planned trial extension piece (table 1) and the metaphyseal component over the guide rod (fig. 13).

Extension	Extension piece	Screw
0mm	no	25mm
5mm	5mm	30mm
7.5mm	7.5mm	30mm
10mm	10mm	35mm
12.5mm	7.5mm & 5mm	35mm
15mm	10mm & 5mm	40mm
17.5mm	10mm & 7.5mm	40mm

table 1: overview of the screw lengths and extension piece

Use of the anatomical shoulder

For the alignment of the adequate retrotorsion of the prosthesis of 30° the alignment rod 30° is placed. In parallel position of alignment rod and forearm axis at 90° flexional elbow joint, the prosthesis is in 30° retrotorsion (fig. 14). Lock the items in this position by the use of an adequate trial screw.

Notice: In case the implant components are changed into an inverse configuration during the surgery the height has to be reduced by app. 10mm and the retrotorsion has to be changed to 10° or 0°. **Because of this it is recommended to use always a 10mm extension piece.** So the implant can be easily switched into an inverse implant by leaving the well fixed or cemented stem in place.



figure 13



figure 14a and 14b


figure 15a

figure 15b

figure 16

Perform the repositioning after attaching the adequate trial cap. The size of the trial cap is determined by the earlier measurement of the resected calotte head with the measurement template (fig. 15a and 15b).

By pulling and moving the arm, the exact adjustment of the length and the rotation of the prosthesis is controlled with the following points (fig. 16):

- distance between tuberculum majus and head (at least 5 mm)
- level of retroversion
- head size
- articulation in different positions of the arm
- height of the prosthesis (subacromial space, ligament tension)

Adjustment of the Offset

Alternatively the position and alignment of the prosthesis can be optimized by changing the modular parts (cap, extension piece).

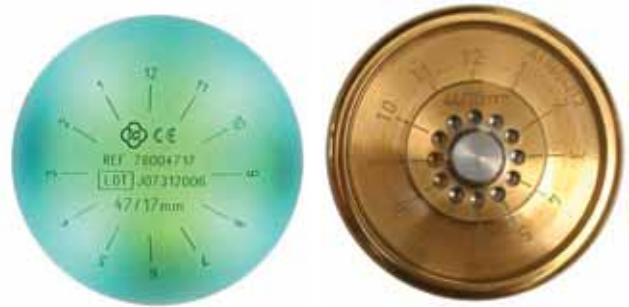


figure 17a and 17b

To have the closest reconstruction of the anatomical circumstances and to optimize the alignment of the prosthesis the surgeon has the choice between 4 different cap diameters (40mm, 44mm, 47mm and 53mm) with respectively 3 different heights (14mm, 17mm, 20mm).

The eccentricity of the caps enables the variation of the mediolateral offset (turn of respectively 30° grade) between - 2 mm and + 2 mm.

Because of this choice, the surgeon can position any medial offset from 4.7 to 10.7 mm. Changing the height of the cap + - 3 mm effects a change of the medial offset + - 2.1 mm compared to the data stated below (fig. 18a to 18c).

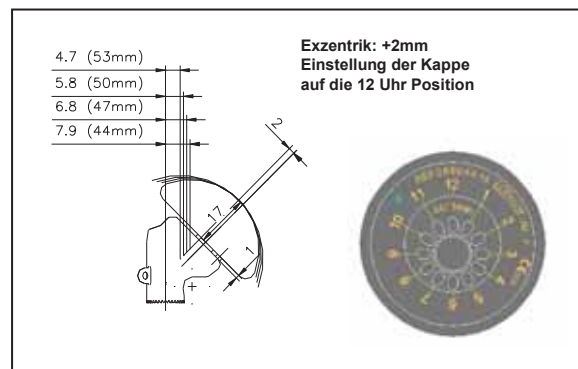


figure 18a

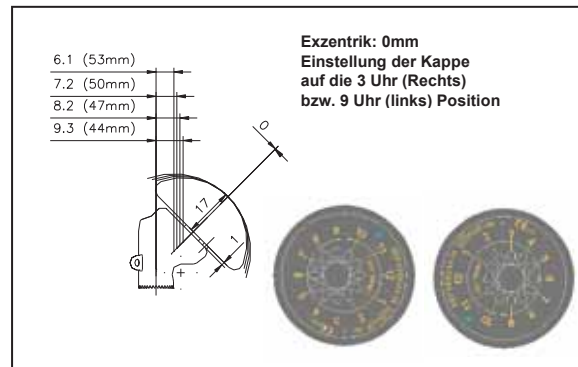


figure 18b

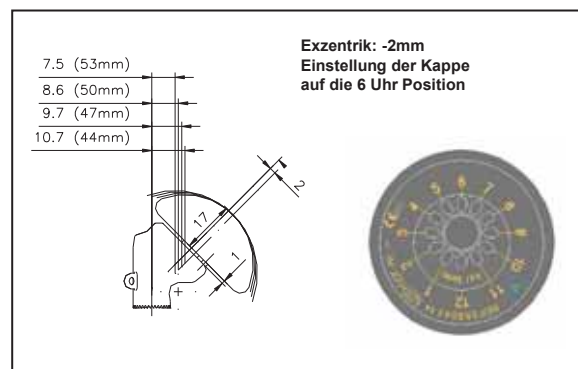


figure 18c

The exact height of the prosthesis can be changed by the use of the extension pieces of 5 mm, 7.5 mm and 10 mm.

Implantation and tension of the original components

After checking the function and obtaining a satisfying alignment of the prosthesis, the trial components can be replaced by the original components.

The guiding rod should be screwed into the implanted stem. Slide the proximal implant components, the metaphyseal component and the extension piece over the guiding rod (fig. 19).

Make sure that the tothing of all components are clean. ing

Please double check the correct retrotorsional alignment (like fig.14, page 12).



figure 19

Slide in the screw of the correct length (see table 1, page 12).

Use the torque screw driver and the countering instrument to lock the implant components.

Mount the to parts of the countering instrument and place them onto metaphyseal component (fig. 20



figure 20

Slide the torque screw driver through the sleeve of the counteracting instrument and lock the implant components (fig. 21a and 21b).



figure 21a and 21b

When the arrow on the handle of the torque screw driver has reached the 15Nm mark, the recommended torque is applied (fig. 21c).

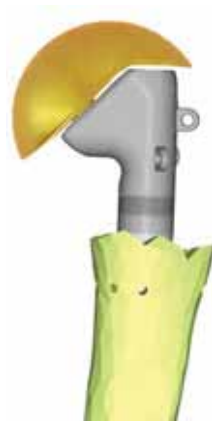
Fix the safety screw in the same way.



figure 21c

**figure 22a**

The dimension of the cap or the CTA cap that is determined during the trial reduction is chosen and attached after cleaning the cone. By using the head impactor, the components are seated with some slight strokes with the hammer (fig. 22a and 22b).

**figure 22b**

Notice: A CTA cap is intended for the use as a hemi-arthroplasty, to treat a patient after an inverse shoulder has failed. Although the curvature of the caps allows the combination with all glenoid components it is normally not combined with glenoid implant.

**figure 22c**

Optionally the components can be inserted and mounted in the cap assembly block if it is required to insert the complete implant (fig. 22c).

Osteosynthesis of the tubercles

For the fixation of the tubercular, non absorbable suture material is used.

The tubercular armed at the fiber bone boundary has to be fixed in horizontal direction. The fibers must be directed around the medial neck of the prosthesis to ensure a stable fixation. For a secured 3 point bracing of the fragments the fibers can be pulled through the ears of the prosthesis: dorsal ear → Tub. Majus, ventral ear → Tub. minus (fig. 23a).

The lateral ear, in 90°-position located, can be used optionally. The tubercles have to be adapted and fixed in anatomical position at the prosthesis and the humeral stem.

The fixation of the tubercles to the humeral stem is done with the previously placed transosseus fibers in vertical direction. Additional fragments and spongiosa bone from the natural calotte can be used to improve the osteointegration in the cavities and between tubercles and the neck of the prosthesis (fig. 23b).

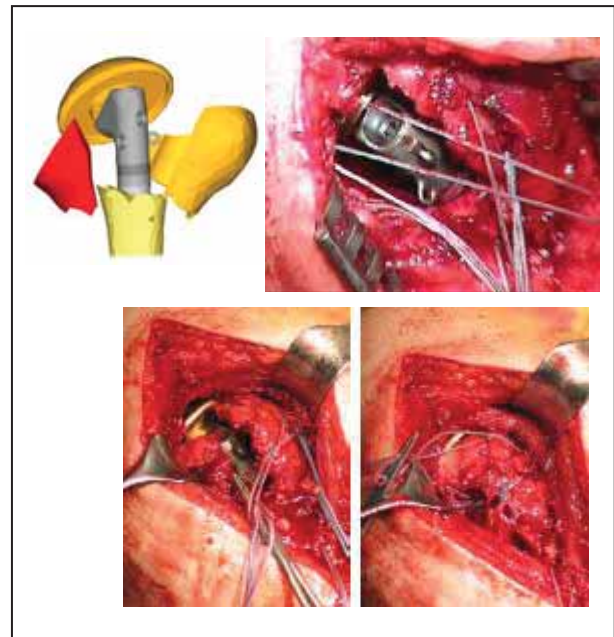


figure 23a

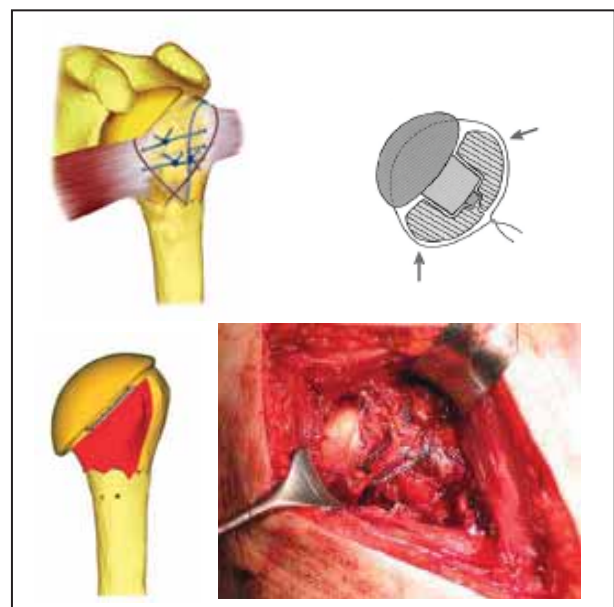


figure 23b

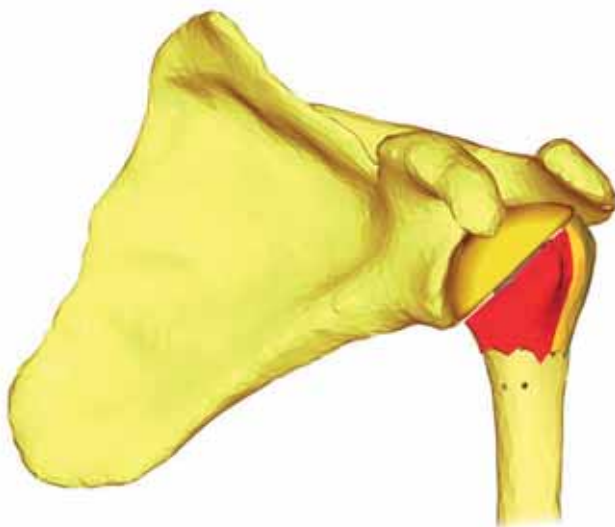


figure 23c

The correct position of the tubercles should be checked by performing preferably with an image converter (fig. 23c).

A good result is reached when the tubercle refixation is stable, secured and anatomically aligned.

If necessary there a cemented PE glenoid (see specific surgical technique) or the inverse components (see page 20 ff.) might be implanted.

Reconstruction of the soft tissue

Existing lesions of the rotator cuff should be closed. It is also indicated to close the rotator cuff intermittent because it contributes to secure the antero-posterior cuff. Pay attention that the long biceps filament is undisturbed. If this is not possible a tenodose or resection has to be considered. The wound closure has to be done with redon drains.

Glenoid preparation cementless

Mark the centre of the glenoid (fig. 24). Put the glenoid drill guide (fig. 25a) on the marked centre of the bearing area and insert the 3.2 mm pin.

Notice: implantcast offers CT based patient specific drill guides on special request.



figure 24

Connect the drill guide with the handle and place it onto the surface of the glenoid bone (fig. 25a). Insert the 3.2mm bone Pin through the central hole of the drill guide (fig. 25b). Remove the drill guide afterwards.

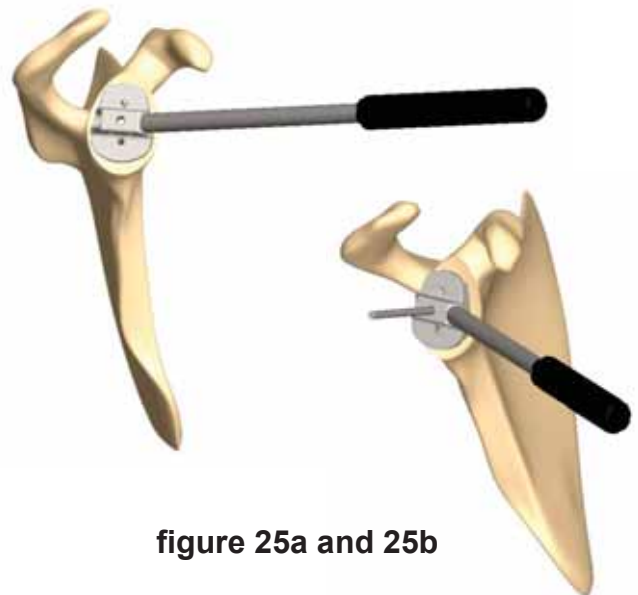


figure 25a and 25b

Use the glenoid reamer 30mm to expose the subchondral bone. The reamer is guided by the guide wire (fig. 26a). Please use the cannulated drill to prepare the bone for the central peg (fig. 26b). Remove the guide pin.

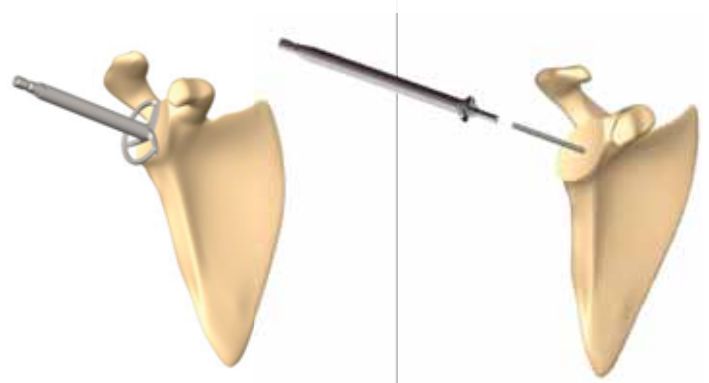
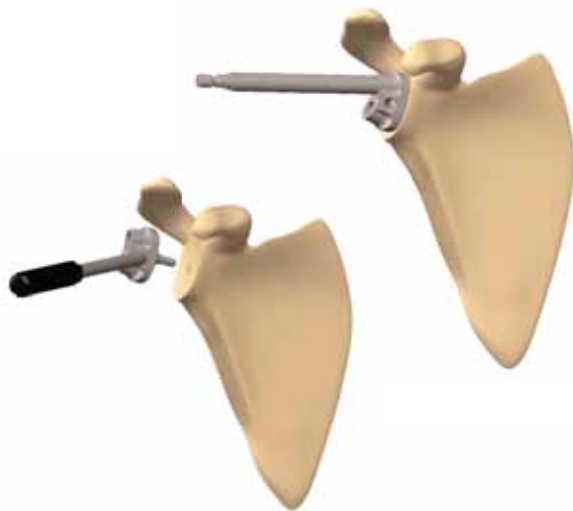


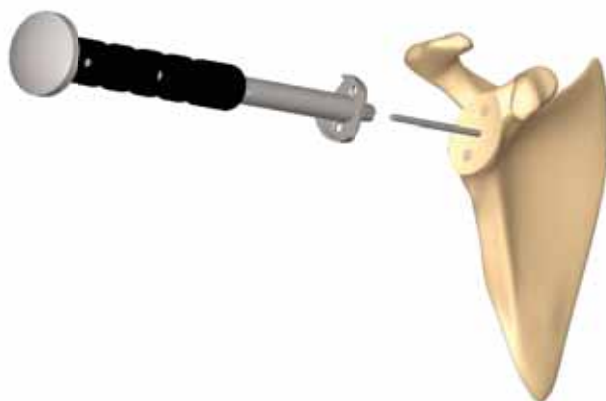
figure 26a and 26b

**figure 27a and 27b**

Insert the special drill guide for the cranial and caudal groove of the implant (fig. 27a).

Use the drill with stop through the drill guide to prepare the holes for the grooves (fig. 27b).

Remove the drill guide. Connect the glenoid with the cannulated glenoid impactor. Align the upper screw hole to the coracoid-base. If necessary insert again the guide pin into the central hole.

**figure 28**

Impact the implant carefully until the glenoid rests completely flush on the reamed bone surface (fig. 28). Please release the impactor after seating of the implant and remove the guide pin.

Notice: The central hole will be slightly smaller than the peg. The Peg will be locked in the bone by pressfit.

Drill die holes for the locking screws by the use of the 2.0 mm drill. You can freely angle the screw up to 15 degrees, as the screw head is self-threading into the glenoid material (fig. 29).

**figure 29**

Determine the screw length and insert the screws of the correct lengths.

Determine the screw length and insert the screws of the correct lengths (fig. 30a and 30b). Lock the screws with the hex screw driver 2.5mm.

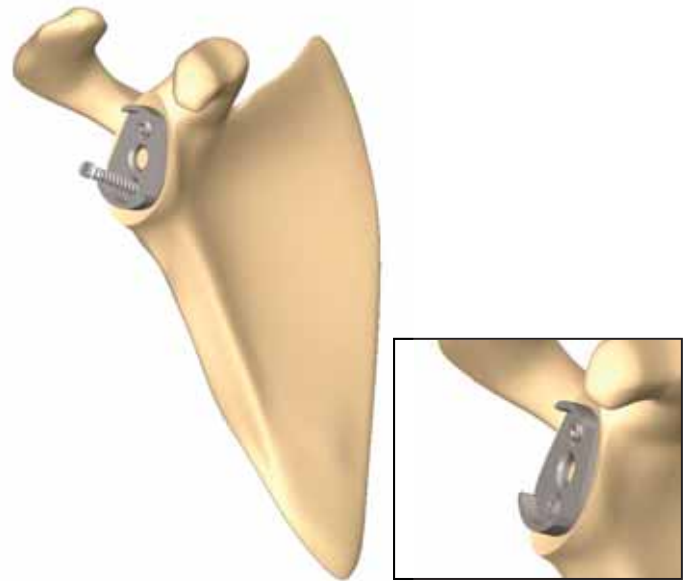


figure 30a and 30b

Then screw the trial glenosphere, also with the hex screw driver, onto the glenoid (fig. 31a) and perform a trial reduction. The markings on the trial glenosphere help to obtain the optimal position of the glenosphere (fig. 31b).

To avoid an inferior impingement of the articulating surfaces on the scapula the glenospheres of the sizes 40mm and 44mm can be positioned eccentrically. Therefore the trial glenospheres show a degree adjustment with the clock. These markings can be found on the inner surface of the implant (fig. 31b).



figure 31a and 31b

Attachment of the glenosphere

Double check the correct retrotorsional alignment of the implant (fig. 32a). An inverse implant should have a retrotorsion of 0° or 10°.

Impact the trial cap inverse to the metaphyseal component and perform a trial reduction to determine the neck length (fig 32b).

Make sure the coupling of the two implant components is complete (fig. 33b).

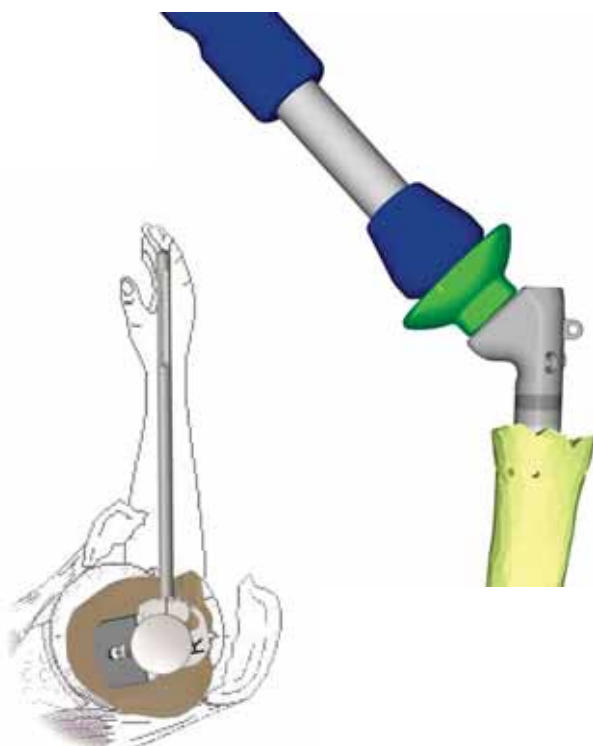


figure 32a and 32b

Check the range of motion (ROM) and the eccentricity of the glenosphere. If necessary, please adjust the neck length of the inverse cap. The difference of the caps S, M and L is 3mm neck length (fig.33).

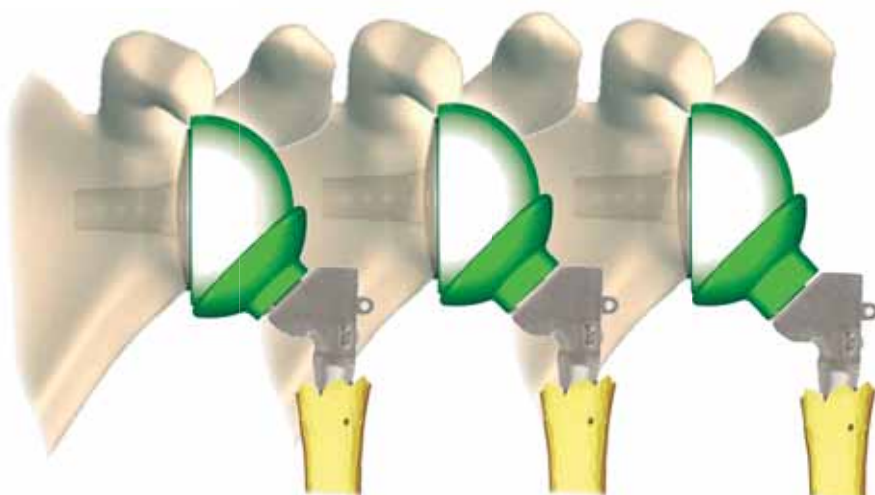


figure 33

Inserting of the glenosphere

Attach the glenosphere onto the glenoid. The lip of the glenosphere locks on the fastening ring of the glenoid (fig. 34).



figure 34

Use of the captured glenosphere positioner

Choose the glenosphere of the previously determined size and place it into the captured glenosphere positioner. Lock the screw **A** until the two gripper arms hold the glenosphere in place (fig. 35). Then lock screw **B** until the impactor part is tensioning glenosphere securely (fig. 35).

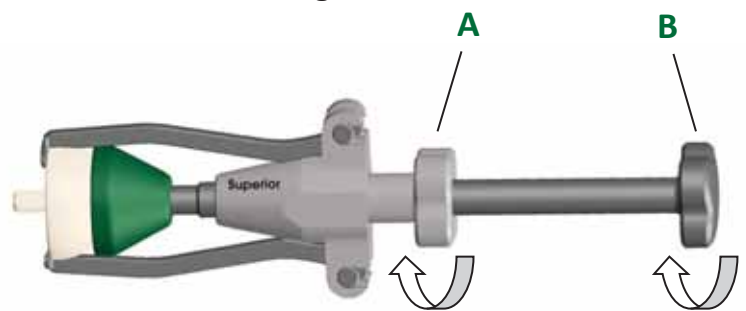


figure 35

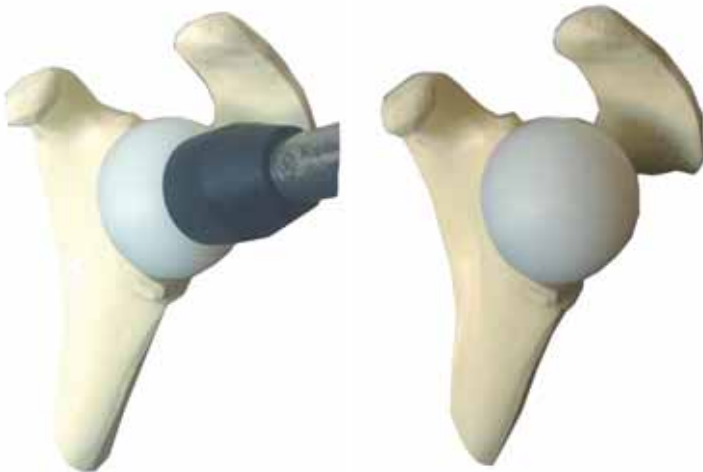
Adjust the glenosphere to the correct rotation, determined during the use of the trial glenosphere (fig. 36a and 36b). Make sure that the rotational marking (9 to 3 o'clock) is orientated towards the superior gripper arm and tighten the glenosphere by the locking of the screw **B** (fig. 35).

Impaction of the glenosphere

Position the glenosphere onto the glenoid. Please hit the platform of the captured impactor lightly to lock the glenosphere to the glenoid. Unlock the captured impactor by unlocking the screws **A** and **B** (fig. 35).



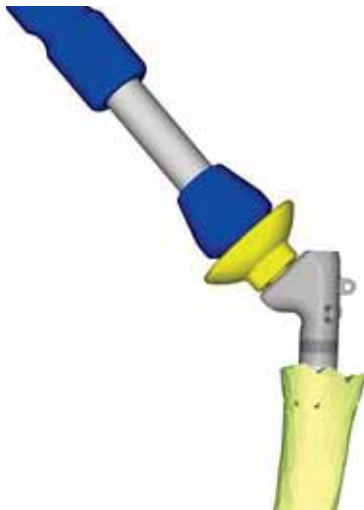
figure 36a and 36b



Use the head impactor to ensure the connection between the components (fig. 37a).

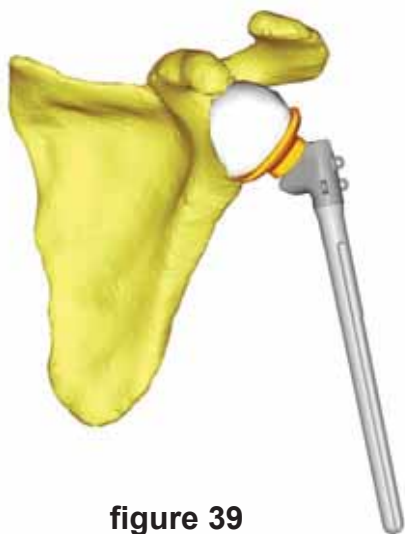
The lip of the glenosphere is locked to the rim of the glenoid (fig. 37a). Make sure that glenosphere is positioned with the correct eccentricity (fig. 37b).

figure 37a and 37b



Please clean the taper of the metaphyseal component and impact the inverse cap of the correct size an height previously determined during the trial reduction, by the use of the cap impactor (fig. 38).

figure 38



Perform a closing reduction of the joint and control the articulation of the joint components (fig. 39).

figure 39

Postoperative treatment and X-Ray controls after AGILON®

1. day:	<ul style="list-style-type: none"> ○ Gilchrist's bandage ○ isometric exercises ○ decongestant (ice) and tonus-lowering actions on the neck, shoulder girdle and arm
2. day:	<ul style="list-style-type: none"> ○ removal of the redon drains ○ bearing of the arm on an abduction pad for 3 weeks at 30° secured inner rotation of the forearm ○ 1. x-ray control in a.p.-layer
3. – 10. day:	<ul style="list-style-type: none"> ○ isometric exercises ○ decongestant (ice, lymphatic drainage) and tonus-lowering actions on the neck, shoulder girdle and arm ○ mobilization of the adjacent joints and scapula pattern
10. day:	<ul style="list-style-type: none"> ○ beginning of passive physiotherapy: 30° abd., 30° flex., 60° iro, 0° aro ○ 2. x-ray control in 2 layers for the control of the position of the prosthesis and the tubercles. If a dislocation of the tubercle is detected, the revisional operation has to be made immediately
21. day:	<ul style="list-style-type: none"> ○ passive physiotherapy: 60° abd., 60° flex., 60° iro, 0° aro ○ 3. x-ray control in 2 layers for the control of the position of the prosthesis and the tubercles.
35. day:	<ul style="list-style-type: none"> ○ active assistive physiotherapy: 90° abd., 90° flex., 60° iro, 30° aro ○ water aerobics without water resistance
42. day:	<ul style="list-style-type: none"> ○ liberalization of full range of motion ○ active physiotherapy without resistance ○ occupational therapy ○ 4. x-ray control in 2 layers for the control of the position of the prosthesis and the tubercles
42. – 84. day:	<ul style="list-style-type: none"> ○ the intention is to reach a humane and fully function of the shoulder





IMPLANTS



AGILON® metaphyseal component incl. safety screw

mat.: *implatan®*; *TiAl₆V₄* acc. to ISO 5832-3

REF	length
3820-0001 Trauma	135° 30mm



AGILON® extension piece M6

mat.: *implatan®*; *TiAl₆V₄* acc. to ISO 5832-3

REF	length
3820-0050	5mm
3820-0075	7.5mm
3820-0100	10mm



AGILON® screw M6

mat.: *implavit®*; *CoCrMo* acc. to ISO 5832-12 with TiN-coating

REF	length
3820-0025	25mm
3820-0030	30mm
3820-0035	35mm
3820-0040	40mm



AGILON® stem, cementless M6

mat.: *implatan®*; *TiAl₆V₄* acc. to ISO 5832-3

3830-6010	10/ 60mm
3830-6011	11/ 60mm
3830-6012	12/ 60mm
3830-6013	13/ 60mm
3830-6014	14/ 60mm
3830-6015	15/ 60mm
3830-6016	16/ 60mm
3830-6017	17/ 60mm
3830-6018	18/ 60mm
3831-2010	10/120mm
3831-2011	11/120mm
3831-2012	12/120mm
3831-2013	13/120mm
3831-2014	14/120mm
3831-2015	15/120mm
3831-2016	16/120mm
3831-8009	9/180mm*
3831-8010	10/180mm*
3831-8011	11/180mm*
3831-8012	12/180mm*
3831-8013	13/180mm*
3831-8014	14/180mm*
3831-8015	15/180mm*
3831-8016	16/180mm*
3832-4009	9/240mm*
3832-4010	10/240mm*
3832-4011	11/240mm*
3832-4012	12/240mm*
3832-4013	13/240mm*
3832-4014	14/240mm*
3832-4015	15/240mm*
3832-4016	16/240mm*

* stems with 2 interlocking holes ø4mm. These stems are not shipped with loan shipments on the regular base and might be ordered additionally!



IMPLANTS

*N: For anti-allergic treatment TiN coated implants are available!

AGILON® stem, cemented M6 *N

mat.: *implavit®*, CoCrMo acc. to ISO 5832-4

REF	size
3820-9006	6/90mm
3820-9008	8/90mm
3820-9010	10/90mm
3820-9012	12/90mm
3821-2006	6/120mm
3821-2008	8/120mm
3821-2010	10/120mm
3821-2012	12/120mm



AGILON® cap

mat.: *implatan®*; TiAl₆V₄ acc. to ISO 5832-3 with TiN coating

REF	size
3800-4414	44/14mm
3800-4417	44/17mm
3800-4420	44/20mm
3800-4714	47/14mm
3800-4717	47/17mm
3800-4720	47/20mm
3800-5014	50/14mm
3800-5017	50/17mm
3800-5020	50/20mm
3800-5314	53/14mm
3800-5317	53/17mm
3800-5320	53/20mm



IMPLANTS

AGILON® CTA cap

mat.: *implatan®*; *TiAl₆V₄* acc. to ISO 5832-3 with TiN coating

REF	size
3822-4414	44/14mm
3822-4417	44/17mm
3822-4420	44/20mm
3822-4714	47/14mm
3822-4717	47/17mm
3822-4720	47/20mm
3822-5014	50/14mm
3822-5017	50/17mm
3822-5020	50/20mm
3822-5314	53/14mm
3822-5317	53/17mm
3822-5320	53/20mm



AGILON® cap inverse

mat.: *implatan®*; *TiAl₆V₄* acc. to ISO 5832-3 with TiN coating

REF	size
3801-3600	36mm S
3801-3605	36mm M
3801-3610	36mm L
3801-4000	40mm S
3801-4005	40mm M
3801-4010	40mm L
3801-4400	44mm S
3801-4405	44mm M
3801-4410	44mm L



AGILON® retentive cap inverse

mat.: *implatan®*; *TiAl₆V₄* acc. to ISO 5832-3 with TiN coating

REF	size
3801-5600	36mmS
3801-5605	36mm M
3801-5610	36mm L
3801-6000	40mm S
3801-6005	40mm M
3801-6010	40mm L
3801-6400	44mm S
3801-6405	44mm M
3801-6410	44mm L



cancellous screw Ø 4 mm

mat.: *implatan®*; *TiAl₆V₄* acc. to ISO 5832-3

REF	length
5793-4026	26 mm
5793-4028	28 mm
5793-4030	30 mm
5793-4032	32 mm
5793-4034	34 mm



IMPLANTS

glenoid cementless anatomical

mat.: pure titanium (cpTi) acc.to ISO 5832-2 with implaFix® HA, HA-coating acc. to ISO 13779-2

REF	size
3800-4028	2 short
3800-4029	2 long
3800-4009	3 short
3800-4010	3 long



glenoid PE-insert

mat.: UHMW-PE acc. to ISO 5834-2

REF	size
3803-1028	2
3803-1032	3
3803-1036	4

AGILON® PE-glenosphere

mat.: UHMW-PE acc. to ISO 5834-2

REF	size
3803-2836	2 36mm eccentrical
3803-2840	2 40mm eccentrical
3803-2844	2 44mm eccentrical
3803-3236	3 36mm neutral
3803-3240	3 40mm eccentrical
3803-3244	3 44mm eccentrical



cancellous screw angle stable lock Ø 4.2mm

mat.: implatan®; TiAl₆V₄ acc. to ISO 5832-3

REF	length
5794-4220	20 mm
5794-4222	22 mm
5794-4224	24 mm
5794-4226	26 mm
5794-4228	28 mm
5794-4230	30 mm
5794-4232	32 mm
5794-4234	34 mm
5794-4236	36 mm
5794-4238	38 mm
5794-4240	40 mm



PE glenoid cemented

mat.: UHMW-PE acc. to ISO 5834-2

REF	size
3803-0032	2
3803-0036	3
3803-0040	4



glenoid cementless (optional for the inverse option)

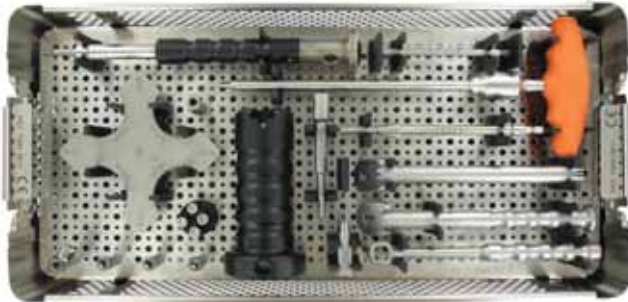
mat.: pure titanium (cpTi) acc.to ISO 5832-2 with implaFix® HA, HA-coating acc. to ISO 13779-2

REF	size
3800-4001	3 round

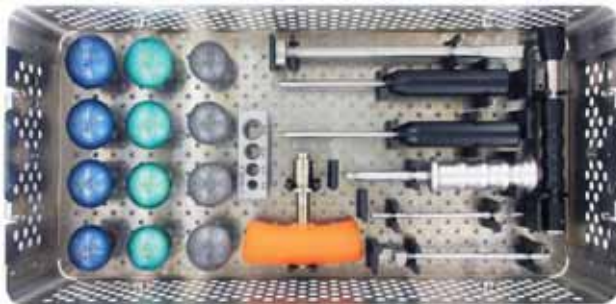




INSTRUMENTS



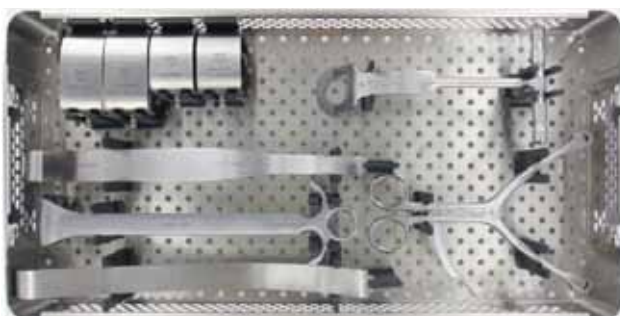
AGILON® container 1
Upper tray
7999-3811



AGILON® container 1
Lower tray
7999-3811



AGILON® container 2
7999-3812

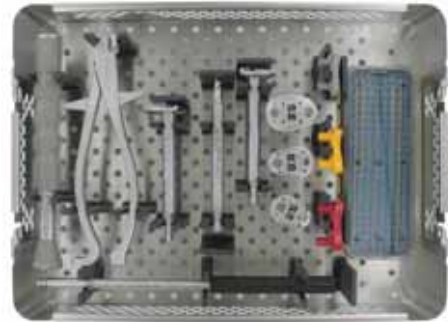


AGILON® shoulder retractor container
7999-3816 (OPTIONAL)

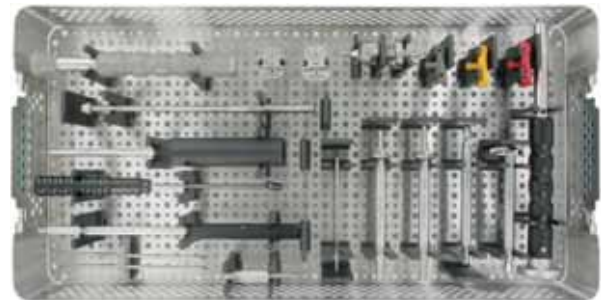


INSTRUMENTS

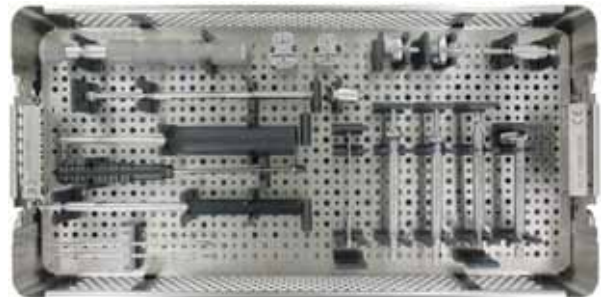
AGILON® PE-glenoid sz. 2-4 container
7999-3836



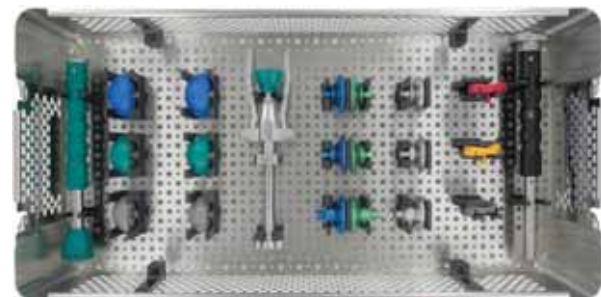
AGILON® glenoid cementless sz. 2-4 container
7999-3837



AGILON® glenoid cementless inverse sz. 2-4 container
7999-3838
Upper Tray



AGILON® glenoid cementless inverse sz. 2-4 container
7999-3838
Lower Tray



AGILON® container 9 (CTA trial cap)
7999-3819 (left image)

AGILON® container 12 (retentive inverse trial cap)
7999-3822 (right image)



INSTRUMENTS

AGILON® trial cap



REF	size
7800-4414	44/14mm
7800-4417	44/17mm
7800-4420	44/20mm
7800-4714	47/14mm
7800-4717	47/17mm
7800-4720	47/20mm
7800-5014	50/14mm
7800-5017	50/17mm
7800-5020	50/20mm
7800-5314	53/14mm
7800-5317	53/17mm
7800-5320	53/20mm

CTA trial cap



REF	size
7820-4414	44/14mm
7820-4417	44/17mm
7820-4420	44/20mm
7820-4714	47/14mm
7820-4717	47/17mm
7820-4720	47/20mm
7820-5014	50/14mm
7820-5017	50/17mm
7820-5020	50/20mm
7820-5314	53/14mm
7820-5317	53/17mm
7820-5320	53/20mm

AGILON® trial metaphyseal component



7800-0101 Trauma	30mm
------------------	------

AGILON® trial extension piece



REF	length
7820-0150	5mm
7820-0175	7.5mm
7820-1000	10mm

AGILON® trial screw M6



REF	length
7820-0125	25mm
7820-0130	30mm
7820-0135	35mm
7820-0140	40mm



INSTRUMENTS

AGILON® guide rod
7801-0015

AGILON® reamer conical
7801-0019

ic T-handle Zimmer-Jakobs
4223-0023

ic-humerus head remover
8003-6101

drill 3.2mm with stop
8100-2010

AGILON® stem impactor
7801-0012

AGILON® impacting sleeve
7801-0017

Adapter for slap hammer M6
7801-0024

Adapter for slap hammer M10x1
7801-0023

AGILON® impactor
7801-0014

head impactor
7512-4444

Hexagon screw driver
REF size
7608-1001 2.5mm
0280-1007 3.5mm
7608-1050 5.0mm

AGILON® Adapter for slap hammer M8x1
7801-0026

slide hammer short
4223-0031

AGILON® assembling block
7801-0021



INSTRUMENTS



glenoid positioner
7800-4064



glenoid drill guide
7800-4049 size 2
7800-4051 size 3
7800-4050 size 4



glenoid drill guide cementless anatomical
7800-4072 size 2
7800-4071 size 3



modular handle for drill guide
7800-4063



glenoid drill
7800-4061



AGILON® retrotorsion guide modular
7820-0201



pin extractor
7512-0800



Peg drill guide for glenoid anatomic cementless
7800-4081 size 2
7800-4080 size 3



AGILON® Trial glenoid
7802-0032 size 2
7802-0036 size 3
7802-0040 size 4



AGILON® Glenoid trial insert
7803-1028 size 2
7803-1032 size 3
7803-1036 size 4

**INSTRUMENTS**

ic adapter outside A/O, inside ic canulated
7512-3602

**rigid drill 240mm**

REF	Diameter
7820-2408	8mm
7820-2409	9mm
7820-2410	10mm
7820-2411	11mm
7820-2412	12mm
7820-2413	13mm
7820-2414	14mm
7820-2415	15mm
7820-2416	16mm
7820-2417	17mm
7820-2418	18mm



rod for AGILON® trial stem
7800-2430

**trial stem**

REF	length	Diameter
7800-6010	60mm	10mm
7800-6011	60mm	11mm
7800-6012	60mm	12mm
7800-6013	60mm	13mm
7800-6014	60mm	14mm
7800-6015	60mm	15mm
7800-6016	60mm	16mm
7800-6017	60mm	17mm
7800-6018	60mm	18mm
7800-1208	120mm	8mm*
7800-1210	120mm	10mm*
7800-1211	120mm	11mm
7800-1212	120mm	12mm*
7800-1213	120mm	13mm
7800-1214	120mm	14mm*
7800-1215	120mm	15mm
7800-1216	120mm	16mm
7800-9008	90mm	8mm*
7800-9010	90mm	10mm*
7800-9012	90mm	12mm*
7800-9014	90mm	14mm*



* trial stems also used for the cemented stems!

INSTRUMENTS

AGILON® trial glenosphere

7802-2836	36mm	size 2
7802-2840	40mm	size 2
7802-2844	44mm	size 2
7802-3236	36mm	size 3
7802-3240	40mm	size 3
7802-3244	44mm	size 3


AGILON® trial cap inverse

REF	size
7801-3600	36mm S
7801-3605	36mm M
7801-3610	36mm L
7801-4000	40mm S
7801-4005	40mm M
7801-4010	40mm L
7801-4400	44mm S
7801-4405	44mm M
7801-4410	44mm L


AGILON® retentive trial cap inverse

REF	size
7801-5600	36mm S
7801-5605	36mm M
7801-5610	36mm L
7801-6000	40mm S
7801-6005	40mm M
7801-6010	40mm L
7801-6400	44mm S
7801-6405	44mm M
7801-6410	44mm L


quick release chuck small

4224-0021


drill A/O chuck 2.0mm

7700-0020


depth gauge

0282-1007



AGILON®

INSTRUMENTS

glenoid reamer 30mm universal
7801-4070

glenoid reamer
7800-4062 size 4

cannulated drill for glenoid cementless
7801-4075 short
7801-4076 long

glenoid inserter
7800-4001

glenosphere inserter
7801-0001

drill guide 2.0mm angled
0282-1020

pin 1.8mm
0051-0918 x 35mm (4 pcs.)
7800-4052 x 75mm (2 pcs.)

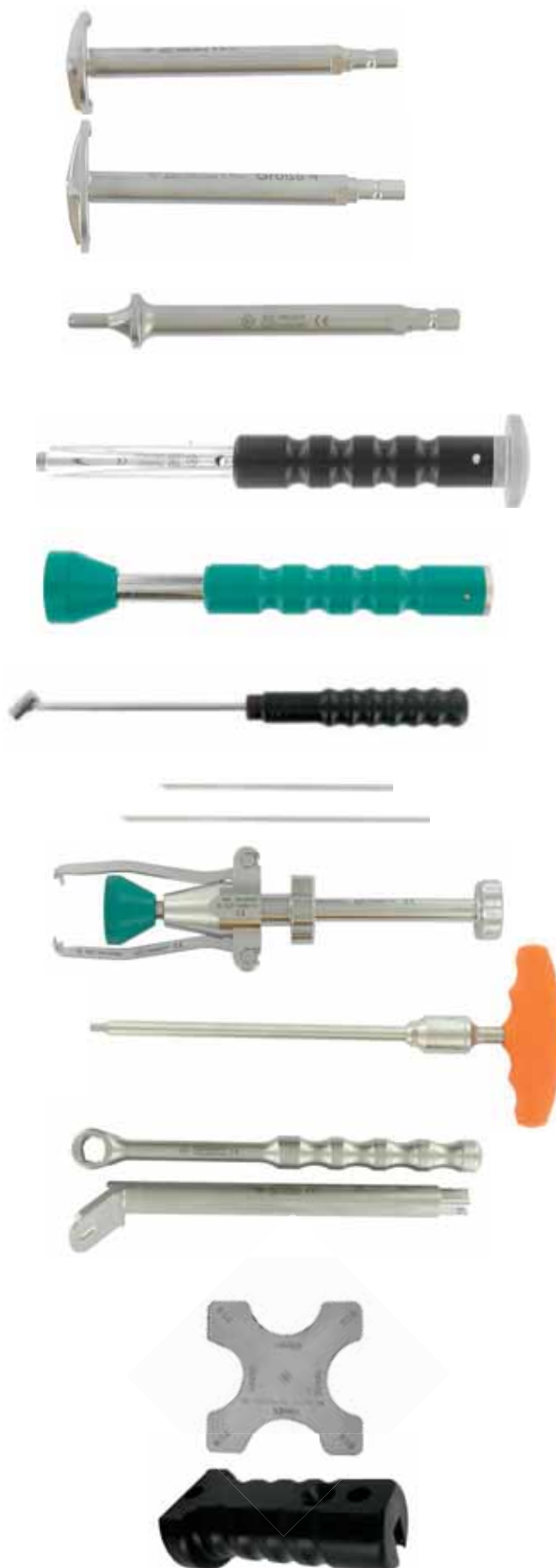
AGILON® captured glenosphere positioner
7801-0030

torque screw driver 15Nm 5mm
7512-0025

AGILON® counteracting instrument
7801-0020

AGILON® shoulder humeral head gauge
7800-4015

AGILON® assembling block
7820-0210



INSTRUMENTS



3,2mm drill length: 126mm (2x)
4221-0019



pins 3,2mm length: 77mm (4x)
4223-0029



pin impactor
4223-0006



Kölbel retractor frame
24-6102



Kölbel retractor valve 36x53mm (2x)
24-6104



Kölbel retractor valve 36x68mm (2x)
24-6105



Kölbel glenoid retractor 15mm
24-6012

Kölbel glenoid retractor 23mm
24-6013



Browne delta retractor
24-6123



humerus head retractor
7820-0211



Guide wire 3.2mm x150mm (2x)
3911-0000



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