

**DIRECT**  
**ANTERIOR**  
**APPROACH**

*Surgical Technique*





# DAA

## Direct Anteriorer Approach

The herein described hip system and minimally invasive instrumentation was developed in co-operation with Dr. med. Metzner, trauma and reconstructive surgery, Hellmig-Krankenhaus in Kamen.

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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**

The minimal-invasive implantation of hip endoprostheses is becoming increasingly significant. If nothing else, the rising costs in the health service means that a long term ward stay is no longer common practice. Through the following new minimal-invasive surgical methods, using the implantation of the EcoFit® cup and the EcoFit® stem with cementless implantation techniques, the ward stay and thus the costs are significantly lowered. This soft tissue-conservative surgical technique makes it possible to perform the prosthesis implantation through a significantly smaller entrance, without muscles or ligaments being loosened or separated from their source. Through this, an evident reduction in post-operative pain and this accelerated mobility is achieved.



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## ***POSITIONING***

The patient is laid on their back with padding under the pelvis, or even better, with a lowerable leg positioning apparatus under the cover of both legs, e.g. by means of a double-U-cloth.

## ***ACCESS***

The skin incision takes place in a longitudinal direction of 2 transverse fingers distally and laterally of the Spina iliaca anterior superior.

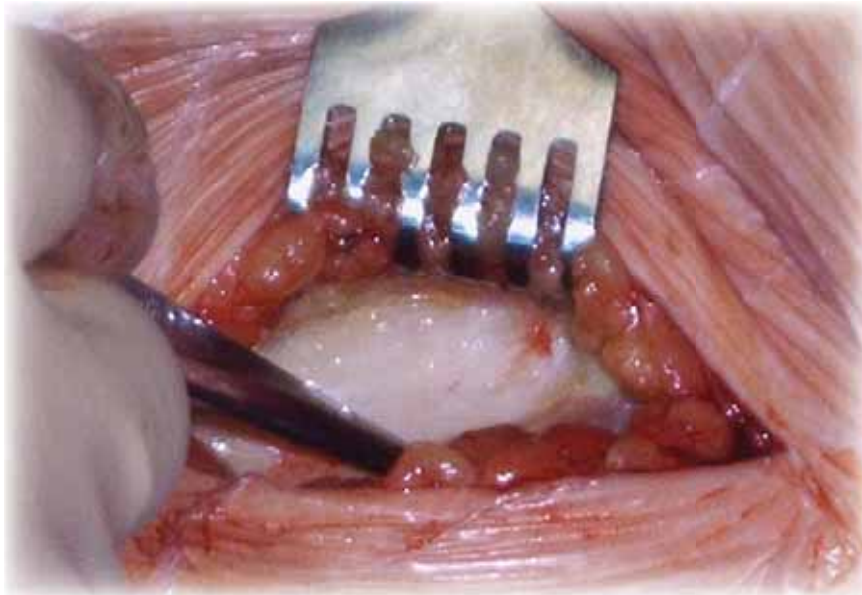
The length of the incision corresponds to the size of the planned hip cup.





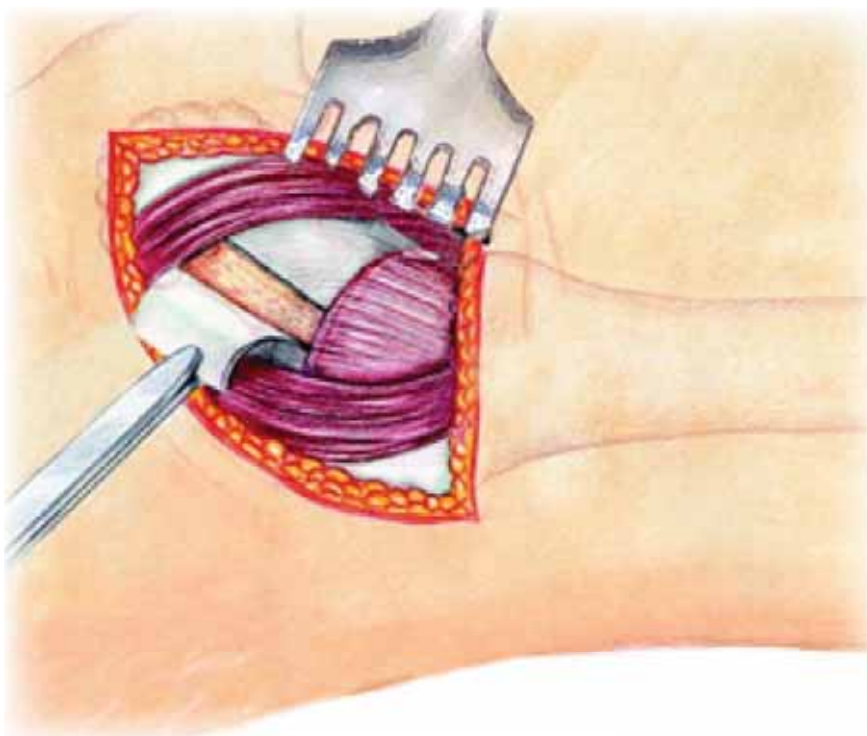
## PREOPERATIVE PLANNING

To expose the joint capsule, carefully perform a blunt dissection between the M. tensor fascia latae and the M. femoris rectus.



## THE SOFT TISSUE ANATOMY

Attention must be paid to the protection of the Nervus cutaneus femoris lateralis. The deep fascia is to be incised on the medial side of the M. tensor fascia latae. The identification of the joint head is most successful under blunt dissection with the index finger.





## ***APPLYING THE RETRACTORS***

The first narrow pointed retractor is placed in the lateral aspect of the trochanter major. The M. Sartorius is held in a medial direction with muscle hook. The A.V. circumflexa femoralis lateralis lies deep in the joint capsule. Two more narrow retractors are placed on the medial and the lateral femoral neck.

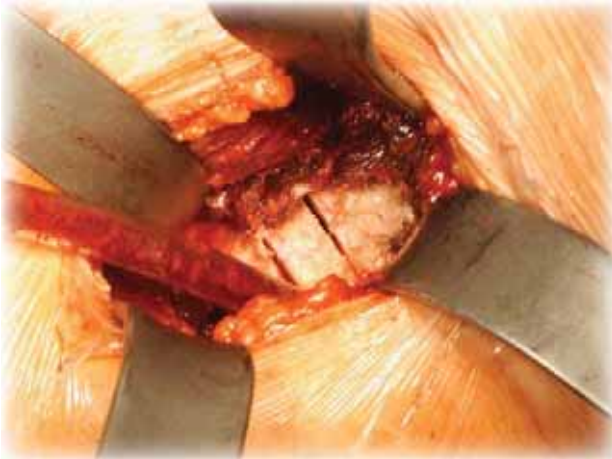
## ***THE ANTERIOR CUP EDGE AND THE OPENING OF THE JOINT CAPSULE***

Upon display of the front edge of the cup after disconnecting the A.V. circumflexa fem. lat. between ligatures, an incision is made between the two origin heads of the M. femoris rectus. If necessary, the Lig. reflectum of the M. femoris rectus can be split. Subsequently, a broad retractor is placed under the M. rectus on the front edge of the acetabulum. The display of the M. fem. rectus is achieved by bending the hip joint. For the preparation of the femoral neck, make an H-shaped incision in the joint capsule with the pointed bent electrocauter. Now the medial and lateral retractors can be converted intra-articularly.



## ***THE FEMORAL NECK OSTEOTOMY***

The osteotomy of the femoral neck is accomplished as a double osteotomy. The first cut takes place in accordance with the preoperative planning, along the Linea intertrochanterica, and the second cut is made 1cm medial to it. Now the femoral neck disc can be removed after detaching it from the dorsal capsule tissue.



## ***THE HEAD EXTRACTION***

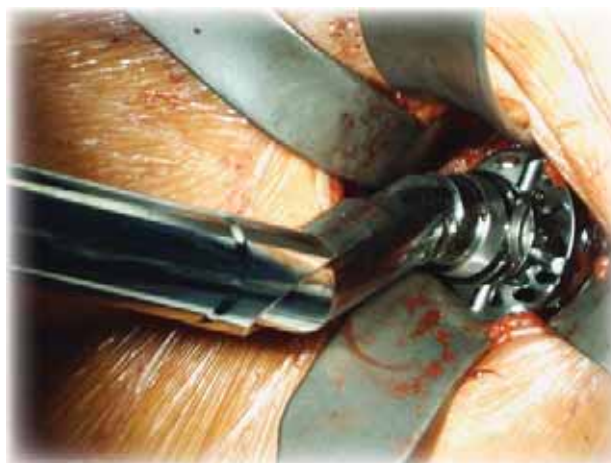
The femoral head extraction then takes place in the conventional way, using a corkscrew extractor.





## THE ACETABULUM PREPARATION

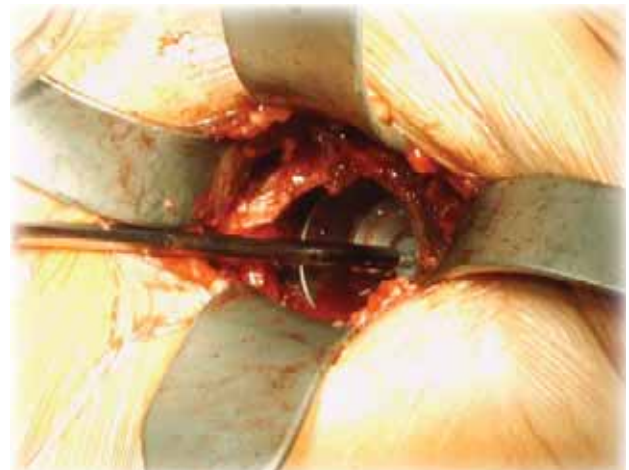
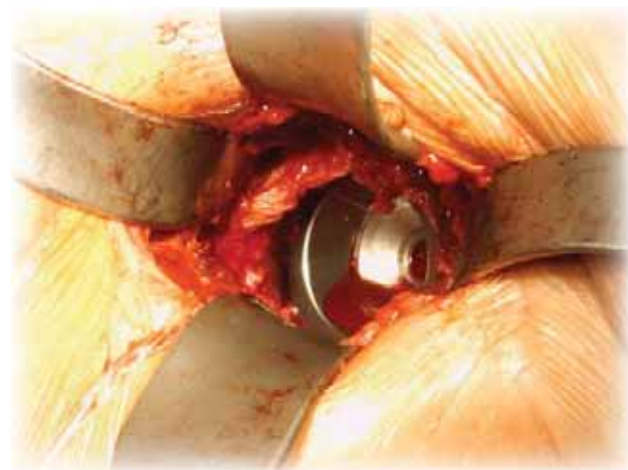
After implementing the retractors laterally behind the Os ilieum, ream the acetabulum up until the surface is sufficiently spongy using the side-specific dorsal acetabular hook with the doubly curved reamer, medially behind the medial edge of the hip cup.





## ***THE IMPLANTATION OF THE CUP***

With the help of the curved setting instrument, the cup is placed and impacted according to the last used reaming size, and then the base closure screw is inserted and fixed.



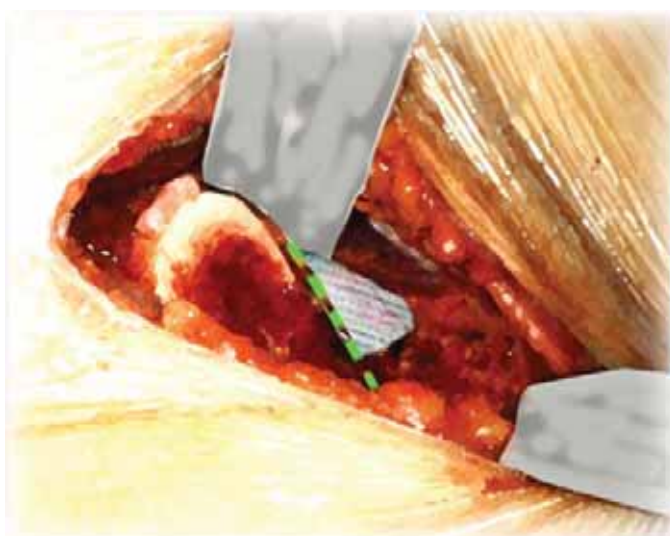
## ***PLACING OF THE CUP INSERT***

Once the cup is correctly seated, the ceramic or PE-inlay with or without a 10° shoulder is now impacted.



## ***EXPOSITION OF THE FEMUR***

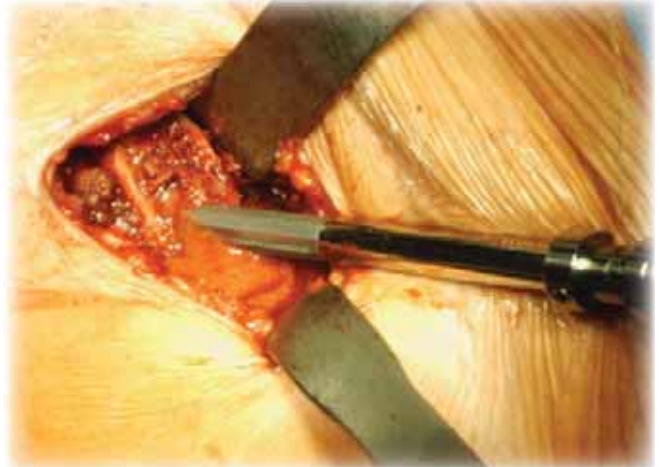
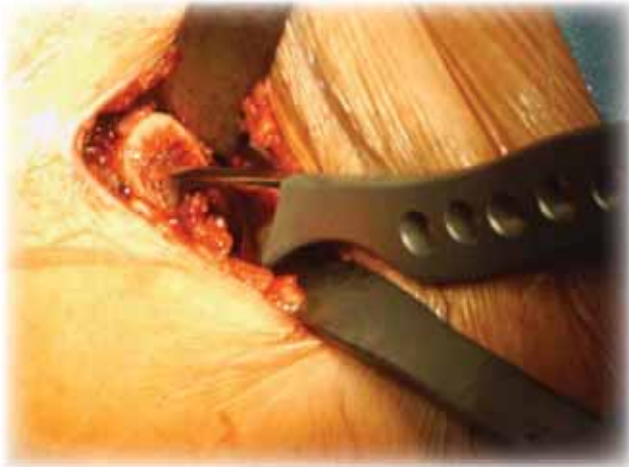
For the representation of the femoral medullary cavity entrance, the equilateral pelvis should be supported or the legs should be lowered, and the leg which is being operated on should be reduced and externally rotated. The stretched position of the knee should be respected here, in order to reduce the course of the Tractus iliotibialis. The dorsal joint capsule is mobilized or replaced. In rare cases it can be necessary to release the obturatorius internus and gemelli in order to achieve sufficient exposure. Subsequently, the femur is raised with a retractor and the femoral elevator is set under the greater trochanter.





## ***THE FEMUR PREPARATION***

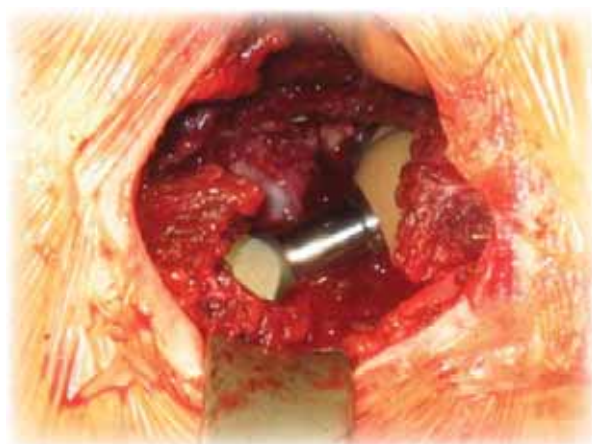
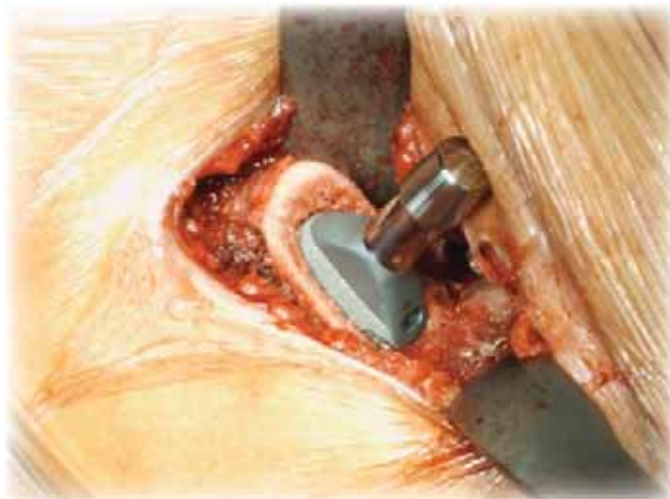
After opening the medullary cavity with the box chisel (and then optionally with the femoral awl), prepare it gradually with the EcoFit® broach using the GIS®-Broach Handle.





## **STEM IMPLANTATION**

After performing a test run with the final broach as a trial in order to determine the stem size, the EcoFit® stem of the appropriate size is implanted, either with a cemented or a cement-less technique, and then the femoral head of the appropriate neck length is set in place.





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## ***ADVANTAGES OF MINIMALINVASIVE TECHNIQUE***

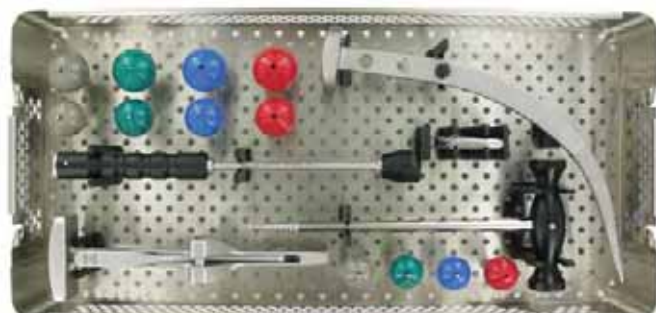
- minimal damage to soft tissues
- significant reduction in pain
- shorter ward stay
- reduction in costs
- reduction of blood loss
- reduced risk of luxation in comparison to other approaches
- easy preparation



## INSTRUMENTS STEM SYSTEMS



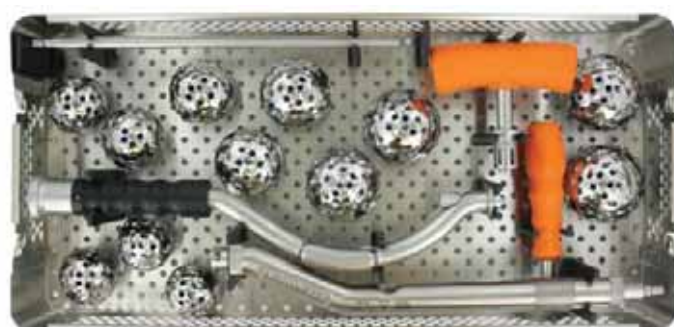
**7999-7047**  
DAA EcoFit® container



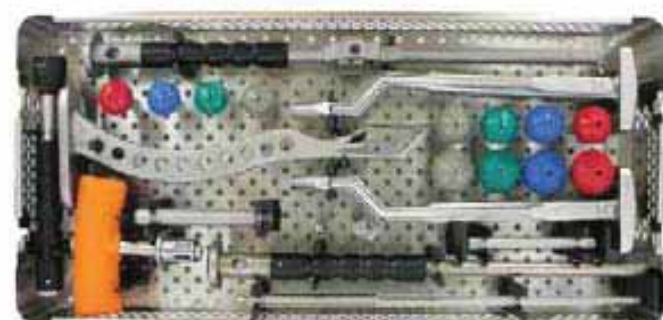
**7999-7048**  
DAA EcoFit® basic container



**8007-7996**  
DAA Aida® container



**7999-0800**  
GIS® acetabulum reamer container  
with curved cup impactor



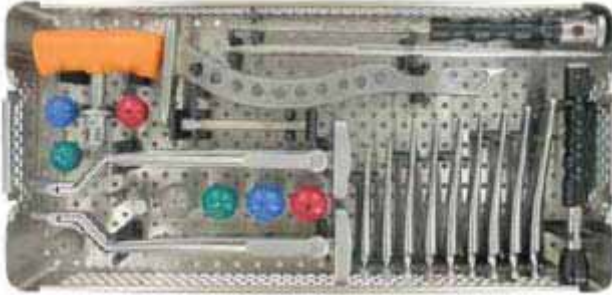
**8004-9001**  
Actinia® GIS® container





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## **INSTRUMENTS STEM SYSTEMS**



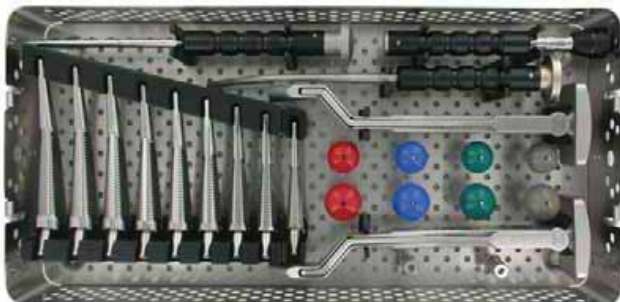
**7999-7049**

EcoFit® easy lock GIS® container



**8006-7996**

AJS® snap lock GIS® container

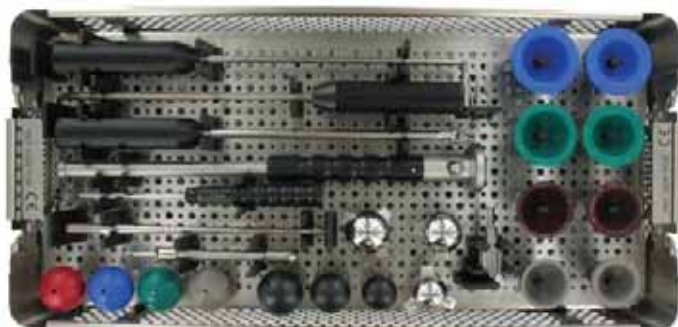


**8007-7997**

Aida® easy lock GIS® Container



## **INSTRUMENTS CUP SYSTEMS**



**0220-1136**  
EcoFit® cup GIS® container  
36mm (top)



**0220-1136**  
EcoFit® cup GIS® container  
36mm (bottom)

## **INSTRUMENTS ACCESSORIES**



**7999-7514**  
GIS® retractor container



## **INSTRUMENTS CONTAINER 7999-7047**

**stem impactor**  
3039-0109



**stem impactor angulate**  
7512-2022



**EcoFit® trial neck  
lateralised**  
7040-1214



**EcoFit® trial neck  
standard**  
7039-1214



**EcoFit® broach**

7039-3062	6,25 mm
7039-3075	7,50 mm
7039-3087	8,75 mm
7039-3100	10,00 mm
7039-3112	11,25 mm
7039-3125	12,50 mm
7039-3137	13,75 mm
7039-3150	15,00 mm
7039-3175	17,50 mm



## **INSTRUMENTS CONTAINER 7999-7048**

**DAA medullary opening broach blank**  
7512-0082



**DAA broach handle**  
7512-0085



**head impactor long**  
7512-0080



**ic- head extractor**  
7512-4450



**modular box chisel**  
7512-0081



**trial head snap taper 12/14mm**

7962-2800 28mm, short  
7962-2805 28mm, medium  
7962-2810 28mm, large  
7962-2815 28mm, extra large  
7962-3200 32mm, short  
7962-3205 32mm, medium  
7962-3210 32mm, large  
7962-3215 32mm, extra large  
7962-3600 36mm, short  
7962-3605 36mm, medium  
7962-3610 36mm, large  
7962-3615 36mm, extra large



## **INSTRUMENTS CONTAINER 8007-7996**

**stem impactor**  
7512-2000



**Aida® awl bowed**  
8007-1024



**Aida® trial neck lateralised**  
8007-1040



**Aida® trial neck standard**  
8007-1039





### **Aida® broach modular**

8007-1000	size	0
8007-1011	size	1
8007-1012	size	2
8007-1013	size	3
8007-1014	size	4
8007-1015	size	5
8007-1016	size	6
8007-1017	size	7
8007-1018	size	8



## **INSTRUMENTS CONTAINER 7999-0800**

### **acetabulum reamer solid section**

7512-1746	Ø 46mm
7512-1748	Ø 48mm
7512-1750	Ø 50mm
7512-1752	Ø 52mm
7512-1754	Ø 54mm
7512-1756	Ø 56mm
7512-1758	Ø 58mm
7512-1760	Ø 60mm
7512-1762	Ø 62mm
7512-1764	Ø 64mm
7512-1766	Ø 66mm
7512-1768	Ø 68mm



### **cup impactor curved constrained** 2950-0606



### **ic adapter with hexagon ball** **8 mm** 7512-3608



### **ic- T-handle Zimmer-Jakobs** 4223-0023





**offset handle for acetabulum  
reamer GIS®**  
7512-1700



## **INSTRUMENTS CONTAINER 8004-9001**

**Actinia® broach handle easy lock  
GIS®**  
8004-9030 right  
8004-9035 left



**cross bar tapered 10mm**  
7513-9999



**coupled stem impactor**  
8004-9032



**coupled stem impactor part 5**  
8004-903205



**universal stem impactor**  
8004-9031



**ic T-handle Zimmer-Jakobs**  
4223-0023



**femoral reamer straight size 1**  
7516-0005





**box chisel**  
7512-1099

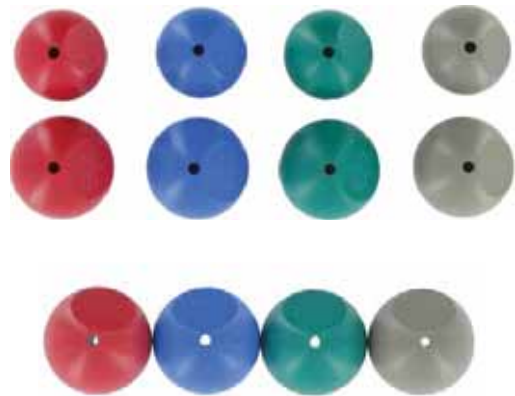


**Actinia® trial neck**  
8004-9028 standard  
8004-9029 lateralised



**trial head snap taper**  
**12/14**

7962-2800	28mm, short
7962-2805	28mm, medium
7962-2810	28mm, large
7962-2815	28mm, extra large
7962-3200	32mm, short
7962-3205	32mm, medium
7962-3210	32mm, large
7962-3215	32mm, extra large
7962-3600	36mm, short
7962-3605	36mm, medium
7962-3610	36mm, large
7962-3615	36mm, extra large



**head impactor**  
7512-4444



## **INSTRUMENTS CONTAINER 7999-7049**

### **EcoFit® broach**

7039-3062	6,25mm
7039-3075	7,5mm
7039-3087	8,75mm
7039-3100	10mm
7039-3112	11,25mm
7039-3125	12,5mm
7039-3137	13,75mm
7039-3150	15mm
7039-3175	17,5mm

(The EcoFit® broach 20mm (REF 7039-3200) is available on request).



### **EcoFit® broach handle easy lock GIS®**

7512-0048 right

7512-0049 left



### **cross bar tapered 10mm**

7513-9999



### **ic T-handle Zimmer-Jakobs**

4223-0023



### **femoral reamer straight size 1**

7516-0005



### **box chisel**

7512-1099



### **EcoFit® trial neck**

7039-1214 standard

7040-1214 lateralised



### **head impactor**

7512-4444





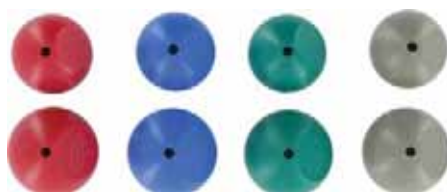
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**trial head snap taper 12/14**

7962-2800	28mm, short
7962-2805	28mm, medium
7962-2810	28mm, large
7962-2815	28mm, extra large
7962-3200	32mm, short
7962-3205	32mm, medium
7962-3210	32mm, large
7962-3215	32mm, extra large

**stem impactor**  
3039-0109**INSTRUMENTS CONTAINER 8006-7996****GIS® broach handle snap lock left**  
7512-0505**GIS® broach handle snap lock right**  
7512-0510**head impactor**  
7512-4444**stem impactor**  
3039-0103**universal broach 5mm anatomic**  
8005-1605**box chisel**  
7512-1099**trial head snap, taper 12/14**

7962-2800	28 mm, short
7962-2805	28 mm, medium
7962-2810	28 mm, long
7962-2815	28 mm, extra long
7962-3200	32 mm, short
7962-3205	32 mm, medium
7962-3210	32 mm, long
7962-3215	32 mm, extra long





## **INSTRUMENTS CONTAINER 8007-7997**

### **Aida® broach handle easy lock GIS®**

7512-0014 right  
7512-0015 left



### **Aida® trial neck**

8007-1039 standard  
8007-1040 lateralised



### **Aida® awl bowed**

8007-1024



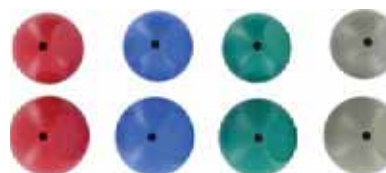
### **stem impactor**

7512-2000



### **trial head snap taper, 12/14**

7962-2800 28mm, short  
7962-2805 28mm, medium  
7962-2810 28mm, long  
7962-2815 28mm, extra long  
7962-3200 32mm, short  
7962-3205 32mm, medium  
7962-3210 32mm, long  
7962-3215 32mm, extra long



### **Aida® broach modular**

8007-1000 Größe 0  
8007-1011 Größe 1  
8007-1012 Größe 2  
8007-1013 Größe 3  
8007-1014 Größe 4  
8007-1015 Größe 5  
8007-1016 Größe 6  
8007-1017 Größe 7  
8007-1018 Größe 8



### **head impactor**

7512-4444





## **INSTRUMENTS CONTAINER 0220-1136**

### **trial shell**

2950-2346	Ø 46mm
2950-2348	Ø 48mm
2950-2350	Ø 50mm
2950-2352	Ø 52mm
2950-2354	Ø 54mm
2950-2356	Ø 56mm
2950-2358	Ø 58mm
2950-2360	Ø 60mm
2950-2362	Ø 62mm
2950-2364	Ø 64mm
2950-2366	Ø 66mm
2950-2368	Ø 68mm



### **shell impactor**

0282-0020



### **handle curved**

7512-2202



### **positioner PE Liner 10°**

0282-0003	Ø 28mm
0282-0004	Ø 32mm
0282-0036	Ø 36mm



### **impactor for cup insert**

0282-0002	Ø 28mm
0282-0007	Ø 32mm
0282-0009	Ø 36mm



### **trial head snap taper, 12/14**

7962-3600	36mm, short
7962-3605	36mm, medium
7962-3610	36mm, long
7962-3615	36mm, extra long



### trial insert 0°

0225-2839	Ø 28/39mm
0225-3239	Ø 32/39mm
0225-3244	Ø 32/44mm
0225-3248	Ø 32/48mm
0225-3252	Ø 32/52mm
0225-3644	Ø 36/44mm
0225-3648	Ø 36/48mm
0225-3652	Ø 36/52mm



### trial insert extractor

1260-0009

### screw driver straight long 3,5mm

0280-1006

### flexible screw driver 3,5mm

0270-1002

### plug remover

0220-1011

### angled drill guide 3,2mm

0282-1001

### drill bit 3,2mm

0282-1005	56mm
0282-1070	70mm

### flexible drill shaft

0282-1000

### depth gauge

0282-1007





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## **INSTRUMENTS CONTAINER 7999-7514**

**GIS® trochanter retractor**  
7512-0926



**GIS® retractor narrow blunt**  
7512-0923



**GIS® retractor wide**  
7512-0922



**GIS® retractor narrow 2x**  
7512-0921



**GIS® acetabulum retractor right**  
7512-0924



**GIS® acetabulum retractor left**  
7512-0925













implantcast GmbH  
Lüneburger Schanze 26  
21614 Buxtehude  
Germany  
phone: +49 4161 744-0  
fax: +49 4161 744-200  
e-mail: [info@implantcast.de](mailto:info@implantcast.de)  
internet: [www.implantcast.de](http://www.implantcast.de)



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