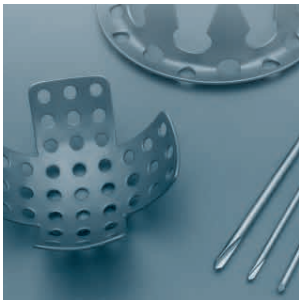
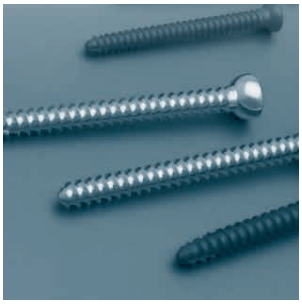




MEDIN®

DYNAMIC HIP SCREW

OPERATION INSTRUCTIONS

OPERATION INSTRUCTIONS

Hip plates with screws, dynamic hip screw for osteosynthesis

Hip plate is used for operations of proximal femur, especially any fractures of femur neck. It allows capturing bone fragments in area of trochanter. It is not possible to use the plate separately, it is necessary to use it only with dynamic hip screw, bone screw and compression screw (that may or may not be used), as so-called DHS system. Introduction of hip plate is performed using special MEDIN instrumentation.

INDICATION of hip plate:
– pertrochanteric fractures
– pertrochanteric multifragmental fractures
– fractures of femoral neck
– intertrochanteric fractures

This brochure should be only considered as an illustrative guideline of hip plate and the instrumentation. The main purpose of this brochure is to provide a quick orientation for surgeons and suture nurses. To show the correct composition and usage of the instrumentation and implant so that the best surgery result would be achieved. If you have any queries do not hesitate to contact sales people of MEDIN Inc.

OPERATION INSTRUCTIONS

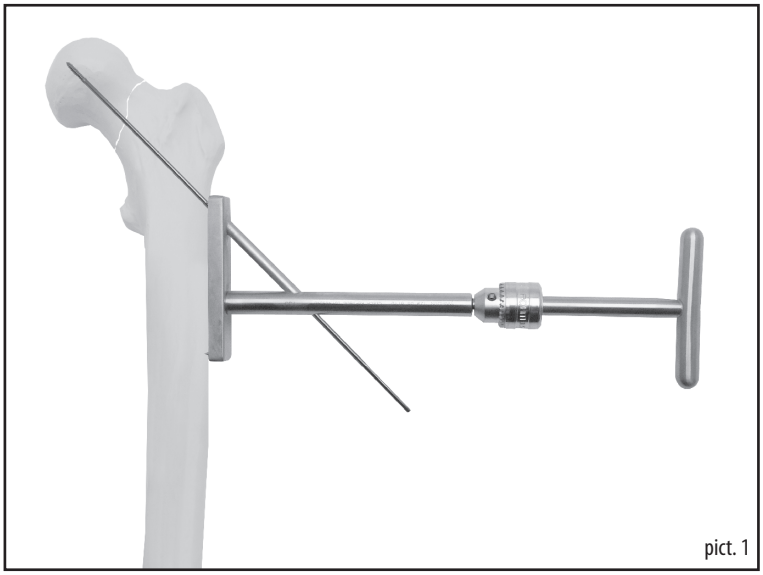
Recommended operation procedure of osteosynthesis of proximal femur with MEDIN dynamic hip screw (especially fractures of all neck parts):

The injured person is placed on the extension table with possibility of proximal femur control done by x-ray in two basic projections.

The fracture is repositioned closed under control of amplifier.

After preparation of the operating field and draping, lateral approach to proximal femur.
Incision from the greater trochanter distally according to size of the chosen plate.

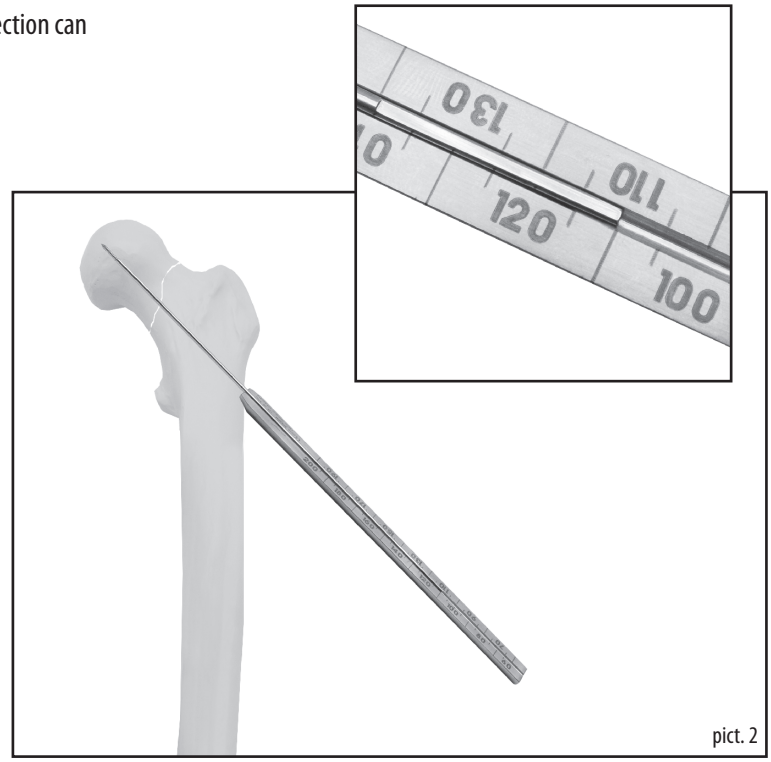
According to angle set in advance (by measuring the image of the healthy part or by evaluation of image from the x-ray amplifier after fracture repositioning, plates with collar of 135°, 150° are supplied now) a **guide wire** of a standard length, ending with thread (part of instrumentation) is inserted strictly centrically using a **hip aiming device** (part of instrumentation), (picture nr. 1).



pict. 1

The centrical insertion of the **guide wire** claims on absolute attention. It is the crucial phase of operation as for mechanical success of synthesis. Only a slight move towards Adams' arch in dorsoanterior projection and to dorsal part of head of femur in axial projection can be tolerated.

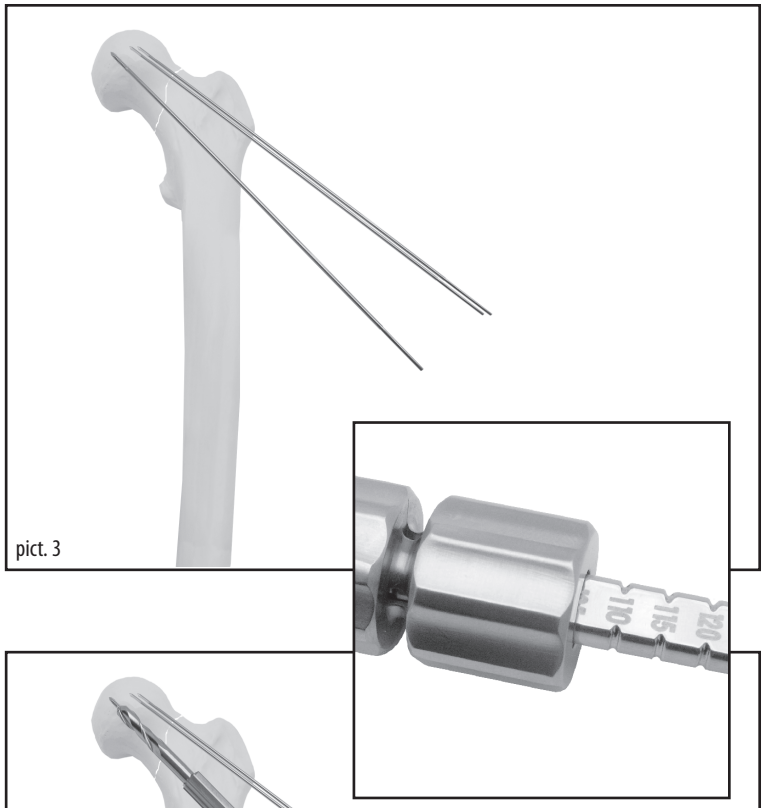
The **wire** ends close to head contour. The length of **wire** in the bone is deducted by **depth rule** (part of instrumentaria). (picture nr. 2).



pict. 2

From that, the length of the **dynamic hip screw** is counted. The **screw** (as well as reaming the canal and thread preparation) must end minimum 5 mm under the x-ray contour of head. External end of the **screw** shall be at least 5 mm inside the bone (presumed shortening by resorption during the healing period), so that the chosen length of the **screw** would be generally 10 mm shorter than measured length of the part of the **guide wire** that is inside the bone.

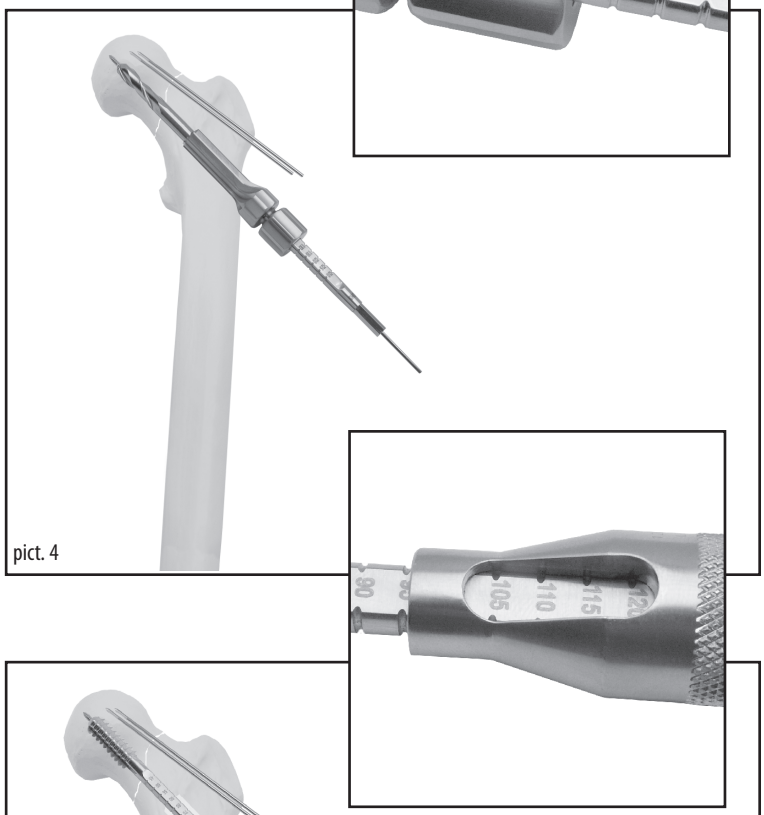
The next step is locking the head to prevent rotation during reaming, cutting the thread and inserting the screw. Undesirable rotation of the head can be avoided by transfixation of two **K-wires** inserted in proximal part of the neck in parallel with the **guide wire** above it in front and behind. The ends of **K-wires** must be shortened not to restrict the next phases of operation.



pict. 3

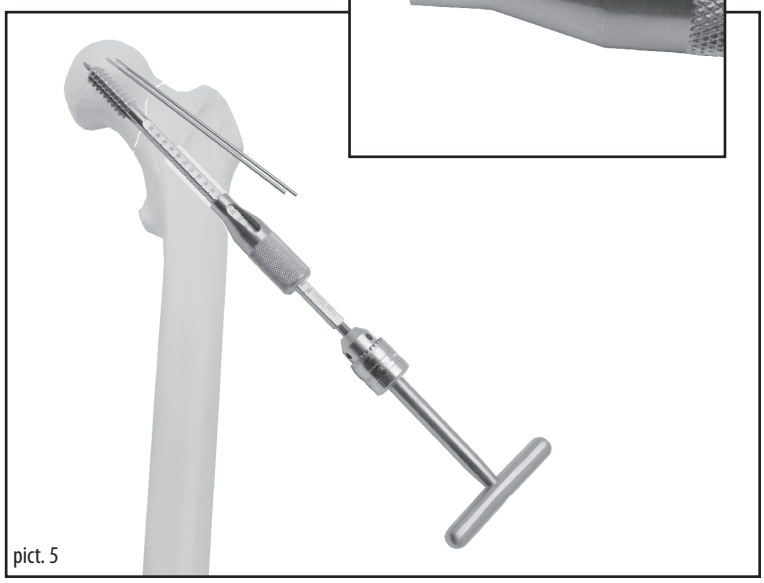
The length of adjustable **drill tip** is set (part of the instrumentation). The length will be 5 mm shorter than measured length of the part of the **guide wire** that is inside the bone. Then the surgeon loosens the safety screw (see picture nr. 4, more outside), sets the length of drill tip by moving its both parts, (see detail of picture nr.4), tightens slightly the safety screw with hand and fastens the **drill tip** in to a reamer of any type.

The **drill tip** shall get into the bone in its whole length and at the same time the canal for **screw** and **plate** collar is reamed. After reaming it is desirable to rinse to canal.



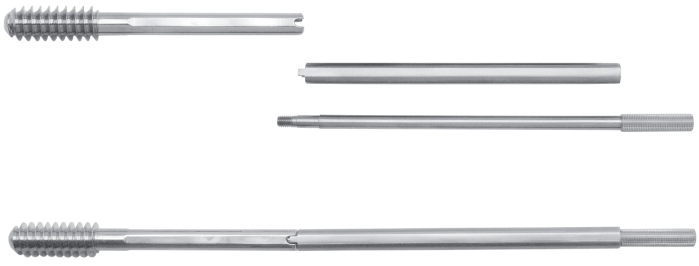
pict. 4

The **tap** is fastened into **hand chuck** (part of the instrumentation). **Guide sleeve** of the tap (part of the instrumentation) enables to hold it in the other hand, following the insertion of the narrow end into the canal of plate collar it is possible to take the reading of tap application length. Nevertheless, the **tap** is usable even without the **sleeve**. (Picture nr. 5).


pict. 5

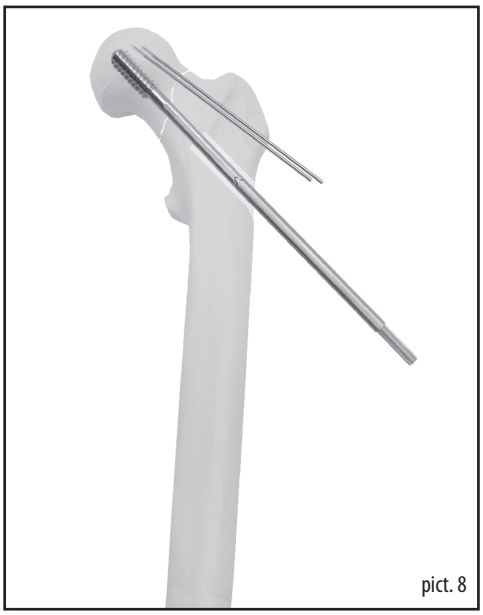
Another step is the **screw** completion for its introduction.

The **screw** of chosen length is extended by **guiding shaft** (part of the instrumentation) and thus, locked by **connecting screw** (part of the instrumentation) - by hand. Picture nr. 6 shows from the left the **screw**, **guiding shaft**, **connecting screw** and the whole set. The whole set is then inserted into the **wrench for osteosynthesis** - two positions possible (part of the instrumentation). The key is adjusted in a way that the **screw** end is always at mark zero (0). The guide wire has to be removed at this phase.



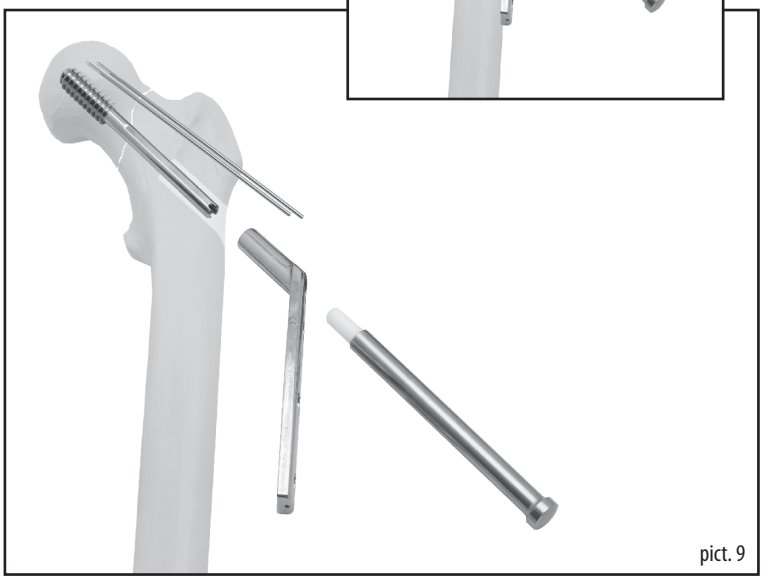
pict. 6

pict. 7



pict. 8

This is followed by **screw** insertion. The **wrench** is supplied with **quide sleeve** (part of the instrumentation), that enables the surgeon to hold the **key** in his other hand without interference with the reading of the depth of **screw** end insertion (picture nr. 7) The **wrench** is fully functional even without **guide sleeve**. After the **screw** insertion its end should appear approximately 5 mm (max. 15 mm) inside the bone, according to consideration its length. There are four possible positions of **dynamic hip screw** during completing with the **plate**. These positions can be attained by keeping the arm of the **wrench-handle** during final stages of its introduction on the axis of the thigh or in a vertical position. Turning the **wrench** by 360° moves the screw by 3 mm.

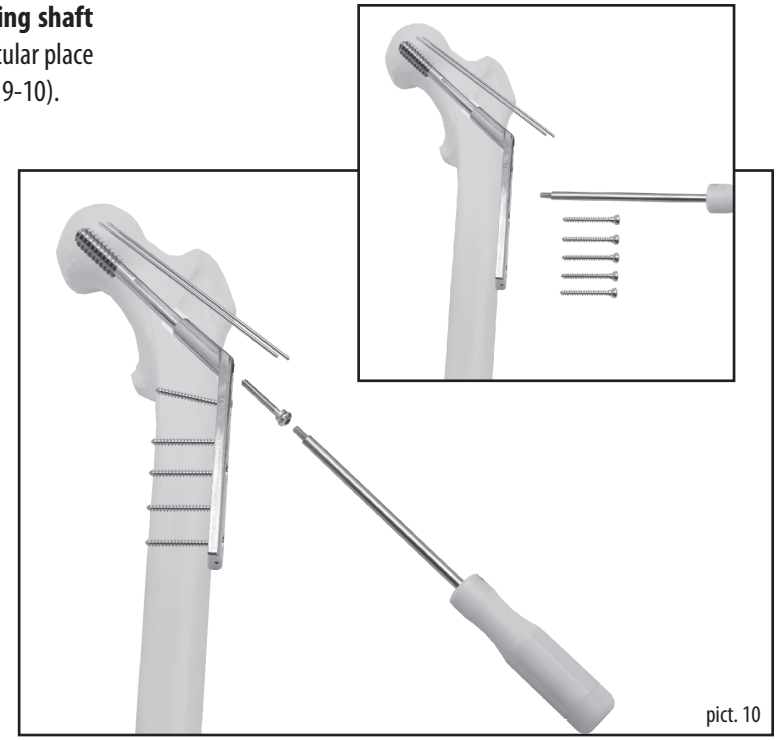


pict. 9

To remove the **wrench** it is necessary to push it out. A **plate** with the collar of appropriate angle and length is then set by using the **guiding shaft**.

Warning:
It is not possible to use **guiding shaft** for fracture repositioning (danger of **connecting screw** damage).

The **connecting screw** of **guiding shaft** and the **guiding shaft** itself are then removed and the **plate** is moved to a particular place with an **impactor** (part of the instrumentation). (Picture 9-10).

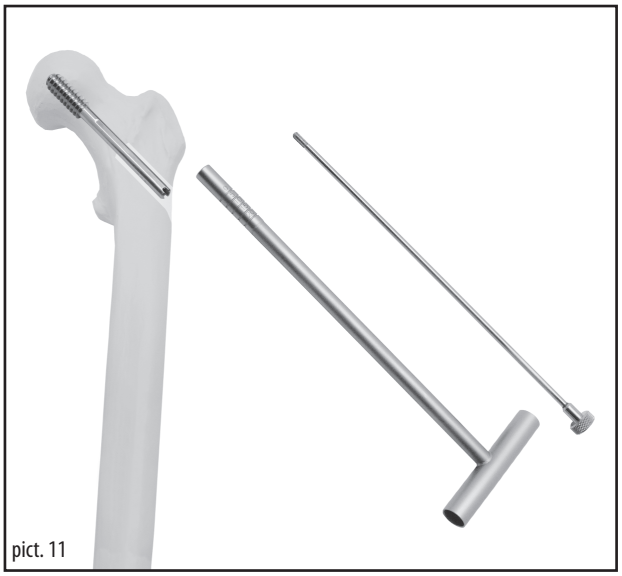

pict. 10

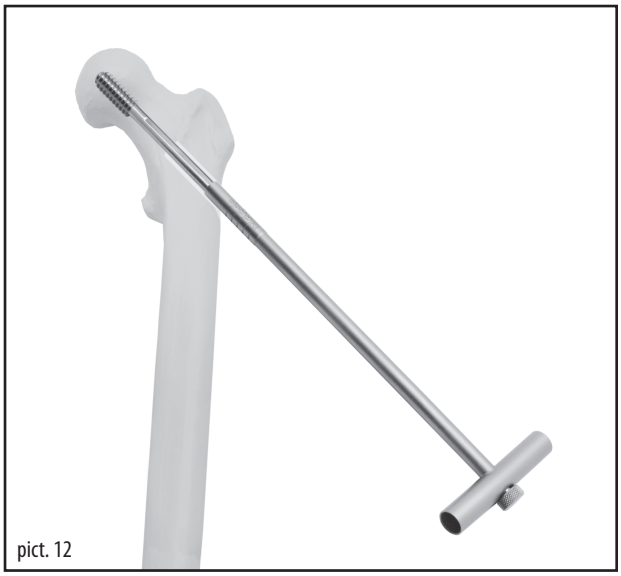
The openings in the **plate** are for appropriate screws made in MEDIN a.s., that enables compression (for subtrochanteric fractures, eventually together with performed subtrochanteric osteotomy).
Drill sleeves enable centric and eccentric (for compression) **screw** introduction. For greater compression, the **plates** are equipped with an opening at the last opening for Poldi 1 puller. The first opening of the **plate** enables **screw** turning in a way that the **screw** can catch bone splinter in the part of small trochanter.

Depending on the surgeon's consideration, subsequent compression by **compression screw** follows; the **screw** may or may not be left in situ after the compression. An early load on the limb will ensure compression of splinters.
The **compression screw** head has imbus 3,5 mm for **screwdriver 3,5 mm** (part of the instrumentation).
Compression screw must be tightened up, especially in porotic bone, in proportion to the strength of two fingers.
It is necessary to remove the transfixing **K-wires** before the closure of the wound.

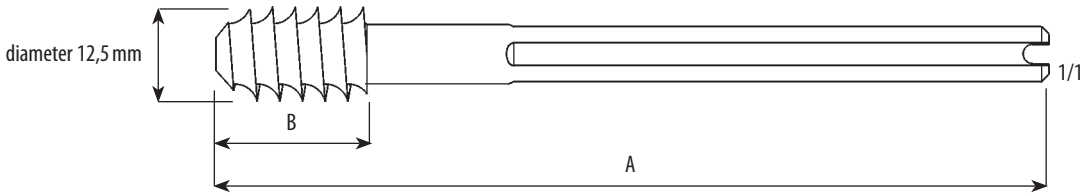
RECOMMENDED PROCEDURE FOR IMPLANT EXTRACTION

To extract the **dynamic hip screw**, take out the **compression screw** as first, then **screws** fixating the **plate** and the **plate** as last. The **wrench** is directly put on **dynamic hip screw** (two positions), which is not difficult, because the screw end usually sticks out of the bone or is closely by side. It is necessary to fix the **wrench** to **dynamic hip screw** by **screw for extraction of hip screws**, and then is the extraction easy. Instruments for **extraction of dynamic hip** screw are parts of the instrumentation.


pict. 11


pict. 12

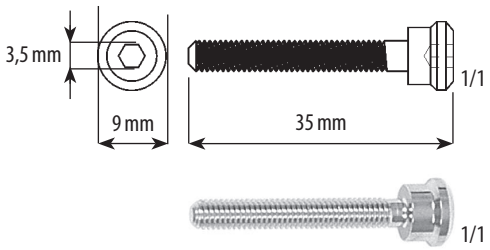
DYNAMIC HIP/CONDYLAR SCREWS



original 110 mm

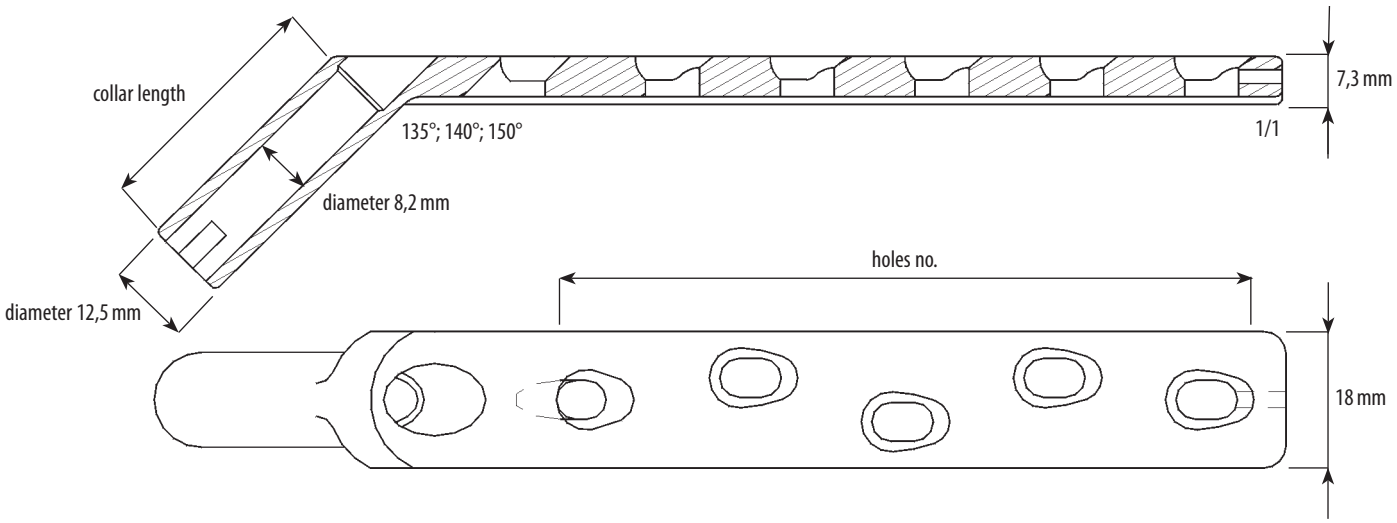
	A	B		A	B
129 08 3000	50 mm	20 mm	**129 08 3400**	50 mm	33 mm
129 08 3010	55 mm	20 mm	**129 08 3410**	55 mm	33 mm
129 08 3020	60 mm	20 mm	**129 08 3420**	60 mm	33 mm
129 08 3030	65 mm	20 mm	**129 08 3430**	65 mm	33 mm
129 08 3040	70 mm	20 mm	**129 08 3440**	70 mm	33 mm
129 08 3050	75 mm	20 mm	**129 08 3450**	75 mm	33 mm
129 08 3060	80 mm	20 mm	**129 08 3460**	80 mm	33 mm
129 08 3070	85 mm	20 mm	**129 08 3470**	85 mm	33 mm
129 08 3080	90 mm	20 mm	**129 08 3480**	90 mm	33 mm
129 08 3090	95 mm	20 mm	**129 08 3490**	95 mm	33 mm
129 08 3100	100 mm	20 mm	**129 08 3500**	100 mm	33 mm
129 08 3110	105 mm	20 mm	**129 08 3510**	105 mm	33 mm
129 08 3120	110 mm	20 mm	**129 08 3520**	110 mm	33 mm
129 08 3130	115 mm	20 mm	**129 08 3530**	115 mm	33 mm
129 08 3140	120 mm	20 mm	**129 08 3540**	120 mm	33 mm

COMPRESSION SCREW



COMPRESSION SCREW
129 09 1440
35 mm
M 4

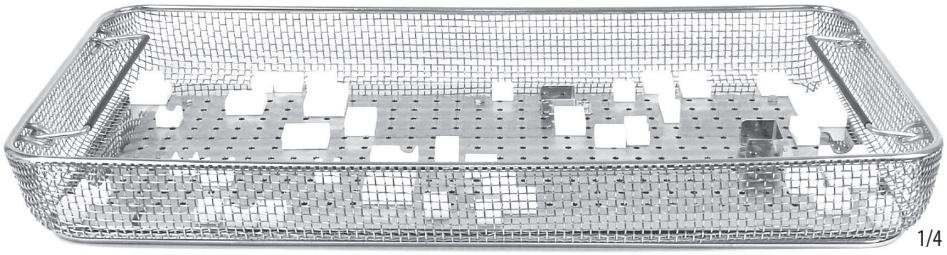
HIP PLATES



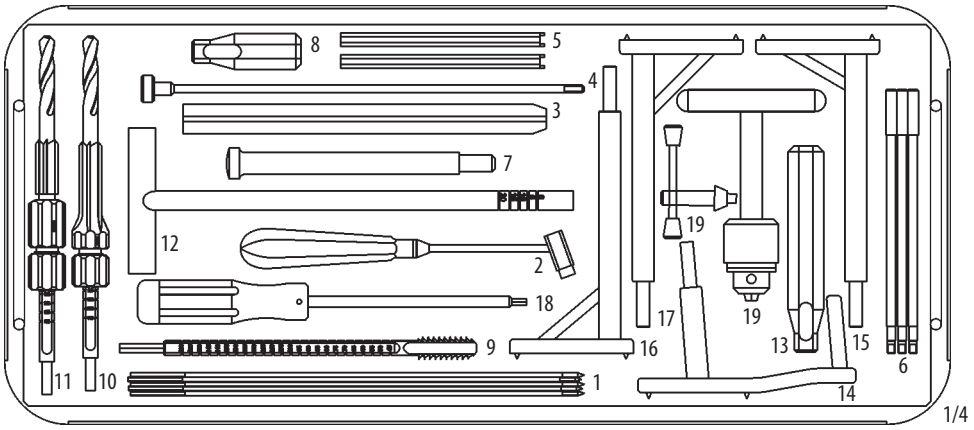
		holes no.	collar length
129 08 2120	135°	2	1″
129 08 2290	135°	3	1″
129 08 2210	135°	4	1″
129 08 2220	135°	5	1″
129 08 2230	135°	6	1″
129 08 2110	135°	2	1,5″
129 08 2270	135°	3	1,5″
129 08 2150	135°	4	1,5″
129 08 2160	135°	5	1,5″
129 08 2170	135°	6	1,5″
for special order			
129 99 0208	135°	8	1,5″
129 99 0166	135°	10	1,5″
129 99 0167	135°	12	1,5″
129 77 3810	140°	3	1,5″
129 77 3820	140°	4	1,5″
129 77 3830	140°	5	1,5″
129 77 3840	140°	6	1,5″

		holes no.	collar length
129 08 2140	150°	2	1″
129 08 2300	150°	3	1″
129 08 2240	150°	4	1″
129 08 2250	150°	5	1″
129 08 2260	150°	6	1″
129 08 2130	150°	2	1,5″
129 08 2280	150°	3	1,5″
129 08 2180	150°	4	1,5″
129 08 2190	150°	5	1,5″
129 08 2200	150°	6	1,5″
for special order			
129 99 0264	150°	8	1,5″
129 99 0348	150°	10	1,5″

NOTES: For these hip plates use cortical screws HA 4,5.



129 79 9610
sieve
500 × 210 mm



139 09 0022
set

			number of pcs
1	**129 08 3300**	INTRODUCING WIRE WITH CORTICAL THREAD 2,5; 250 mm	5
2	**129 08 3680**	DRILL SLEEVE; 184 mm	1
3	**129 08 3700**	RULE; 200 mm	1
4	**129 08 3710**	SCREW FOR EXTRACTION; 244 mm	1
5	**129 08 3720**	GUIDE SHAFT; diameter 5 mm; 112 mm	2
6	**129 08 3730**	CONNECTION SCREW; M4; 137 mm	3
7	**129 08 3740**	IMPACTOR; 145 mm	1
8	**129 08 3760**	CENTERING SLEEVE; 60 mm	1
9	**129 08 3771**	TAP; diameter 12,5 mm	1
10	**129 08 3800**	DRILL TIP FOR HIP	1
11	**129 08 3790**	DRILL TIP FOR KNEE	1
12	**129 08 3820**	INTERMEDIATE T-WRENCH; diameter 10,5 mm; 245 mm	1
13	**129 08 3830**	GUIDE SLEEVE; 110 mm	1
14	**129 08 8100**	KNEE AIMING DEVICE 95°; 120 mm	1
15	**129 08 8110**	HIP AIMING DEVICE 135°; 162 mm	1
16	**129 08 8130**	HIP AIMING DEVICE 140°; 161 mm	1
17	**129 08 8120**	HIP AIMING DEVICE 150°; 162 mm	1
18	**129 79 3900**	HEXAGON SCREWDRIVER 3,5; 214 mm	1
19	**129 79 3990**	HAND CHUCK; 116 mm	1

NOTES: Sieve 129 79 9610 does not enter in the set.

OPERATION INSTRUCTIONS

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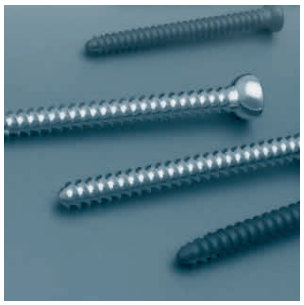

DYNAMIC HIP SCREW

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