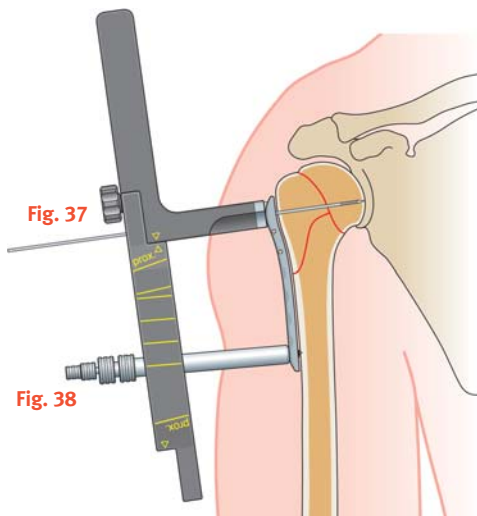


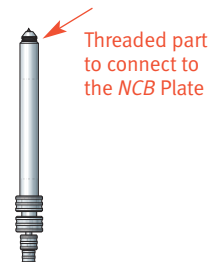
2. Temporary Plate Fixation

The plate can be temporary fixed to the bone with \varnothing 1.6mm K-wire through the proximal cannulated fixation screw of the targeting device (Fig. 37).



3. Insert Tocar Sleeves

Insert the NCB tissue protection sleeve assembly \varnothing 1.6 to 10mm through a skin incision (Fig. 38).



4. Insert \varnothing 1.6mm Guide Wire L = 190mm

Insert \varnothing 1.6mm guide wire with a length of 190mm and confirm the correct position with an image intensifier (Fig. 39).

Note: The distal center can be found with \varnothing 1.6mm K-wire by finding the anterior and posterior bone cortex and putting the K-wire in the middle of these two reference points (Fig. 40).

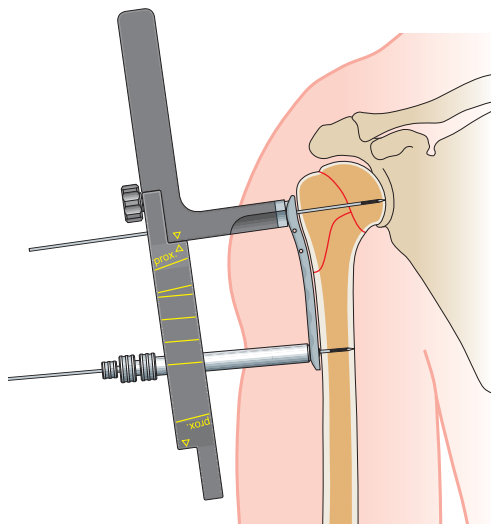


Fig. 39 Insert \varnothing 1.6mm guide wire

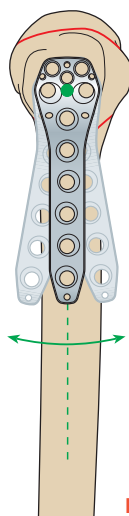


Fig. 40 Find the distal center

5. Drilling and Measuring the Screw Length

Determine the screw length from the measurement with the *NCB* depth gauge along the \varnothing 1.6mm guide wire ($L = 190\text{mm}$ only) (Fig. 41).

Note: With this procedure the distance from the plate to the tip of the K-wire is measured.

For hard cortical bone it is possible to use the \varnothing 3.3mm cannulated drill bit (only for the lateral cortex, to make sure that the K-wire does not fall out). If the drill bit is used without a K-wire, the screw length can be determined from the calibration on the drill bit shaft (Fig. 42).

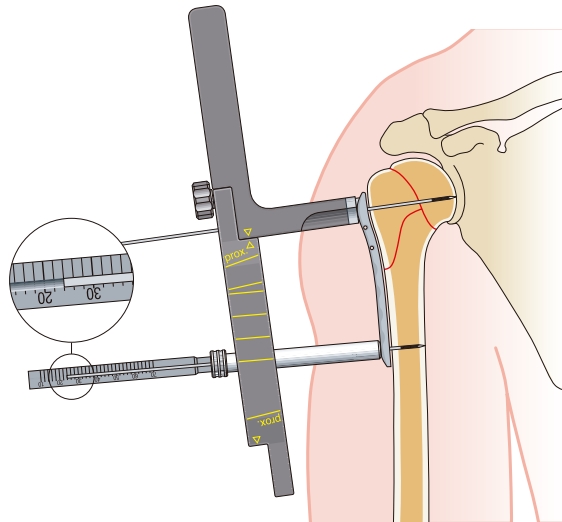


Fig. 41 Determine the screw length with the Depth Gauge

6. Distal Cannulated Screw Insertion

Use the 3.5mm cannulated hexagonal screw driver to insert the cannulated self-drilling screw over the 1.6mm guide wire (Fig. 43).

The *NCB* screws should be tightened moderately to the bone.

Note: For adequate stable fixation, bi cortical screw insertion is recommended.

Note: Care should be taken to avoid the branch of the axillary nerve in the diaphyseal area of the plate.

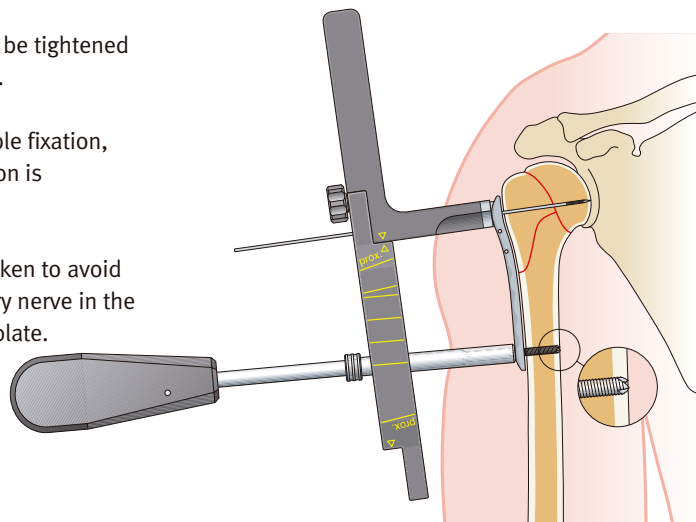


Fig. 43 Insert the Cannulated Self-Drilling Screw

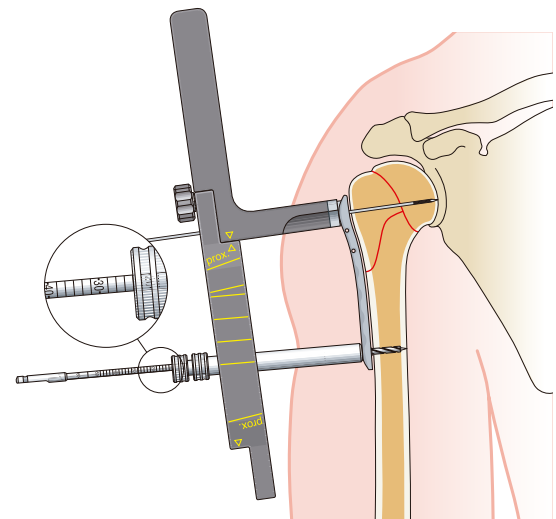


Fig. 42 Determine the screw length with the scaling on the drill bit shaft

7. Add Locking Screw

Insert the Locking Screw Caps with the 3.5mm cannulated Hexagonal Screw Driver over the \varnothing 1.6mm guide wire (Fig. 44).

Tighten the locking screw moderately.

Note: Make sure there is no blood in the screwdriver cannulation since this may push the K-wire forward.

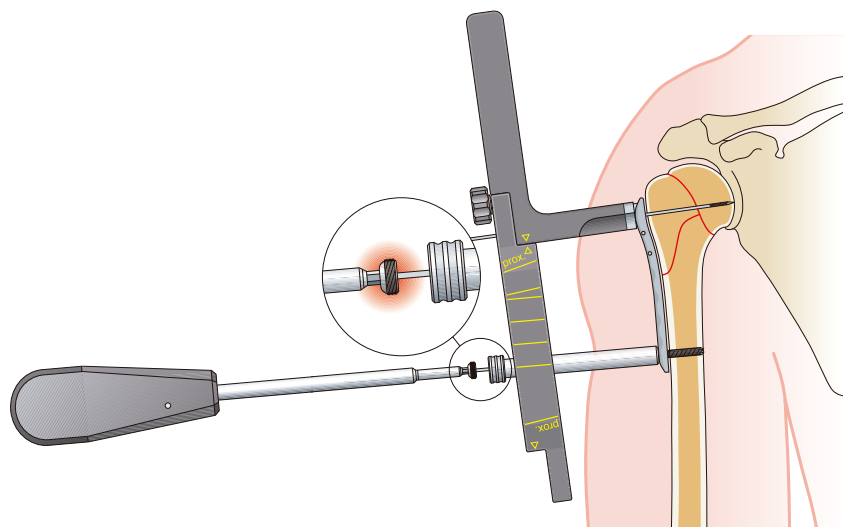


Fig. 44 Insert the Locking Screws

8. Achieve Final Angular Stability

To achieve the final angular stability remove the guide wire and tighten the Locking Screw Caps with the Torque Screwdriver until the wrench declutches (clicking sound) (Fig. 45).

Note: The guide wire must be removed as the Torque-Limiting Screwdriver is not cannulated.

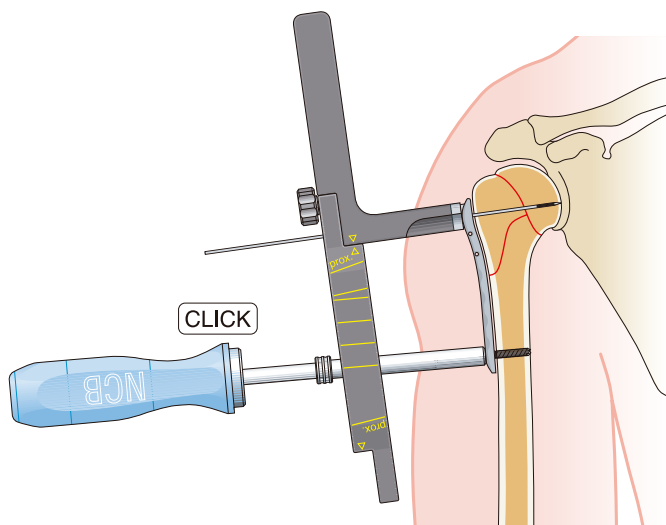


Fig. 45 Tighten the Locking Screws with the Torque-Limiting Wrench

9. Proximal Screw Insertion

Insert \varnothing 1.6mm guide wire with a length of 190mm close to the subchondral bone and confirm the correct position under image intensification (Fig. 46).

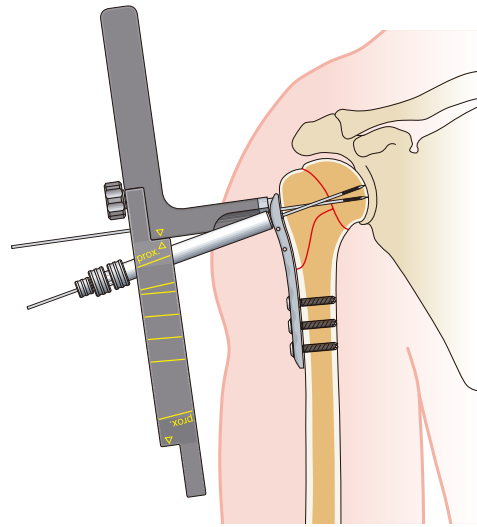


Fig. 46 Insert the guide wire

10. Drilling and Measuring the Screw Length

Measure the length with the NCB Depth Gauge along the \varnothing 1.6mm guide wire (L = 190mm only) (Fig. 47).

Note: With this procedure the distance from the plate to the tip of the K-wire is measured. Determine the screw length by subtracting a sufficient distance to make sure that the screw is in an adequate distance from the joint.

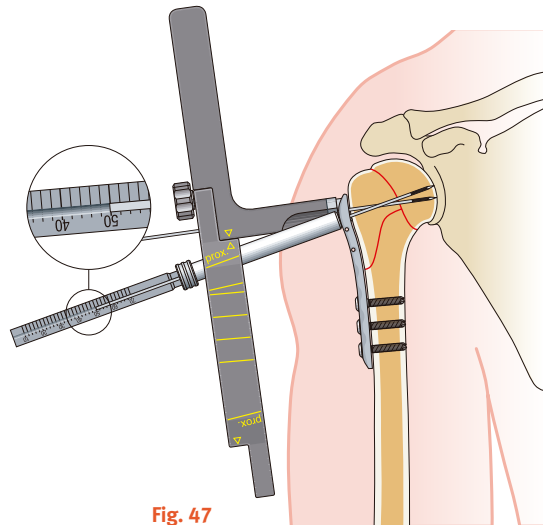


Fig. 47

11. Cannulated Screw Insertion

Use the 3.5mm Cannulated Hexagonal Screw Driver to insert the Cannulated Self-Drilling Cancellous Screw over the 1.6mm guide wire (Fig. 48).

Apply compression for reduction of the fracture. The *NCB* Screws should only be tightened moderately to the bone.

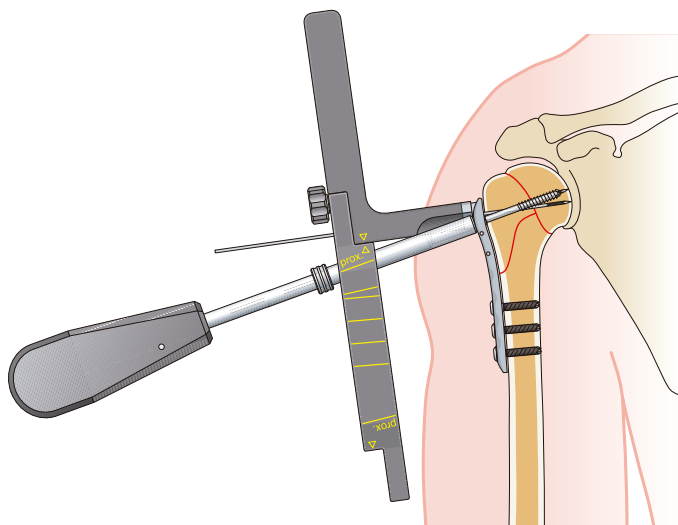


Fig. 48 Insert the Cannulated Self-Drilling Cancellous Screw

12. Add Locking Screw

Insert the Locking Screw Caps with the Cannulated Hexagonal Screwdriver hex 3.5mm over the \varnothing 1.6mm guide wire.

Tighten the Locking Screw moderately.

13. Achieve Final Angular Stability

To achieve the final angular stability remove the guide wire and tighten the Locking Screw Caps with the Torque-Limiting Screwdriver until the wrench declutches (clicking sound) (Fig. 49).

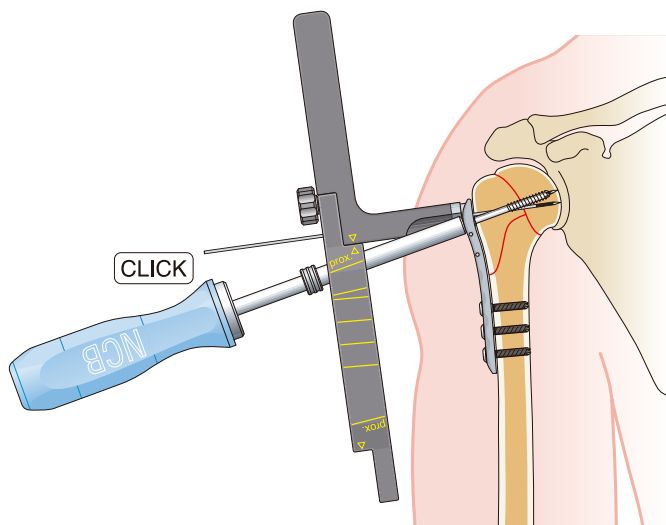


Fig. 49 Tighten the Locking Screws with the Torque Screwdriver

14. Last Proximal Screw Setting (No. 3)

To insert the last proximal screw turn the targeting module and use the hole numbering 3 and the yellow frame on top. Fit the two yellow arrowhead markings (Fig. 50). Then follow the same screw-setting procedure as described in step 9-13 (Fig. 51).

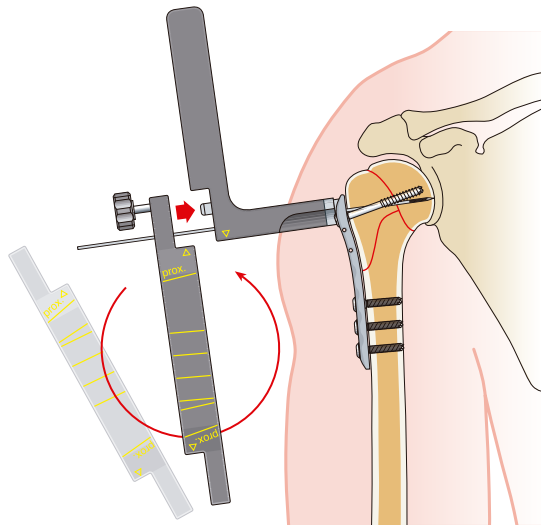


Fig. 50 Turn the Targeting Module and use the yellow top marking with hole no. 3

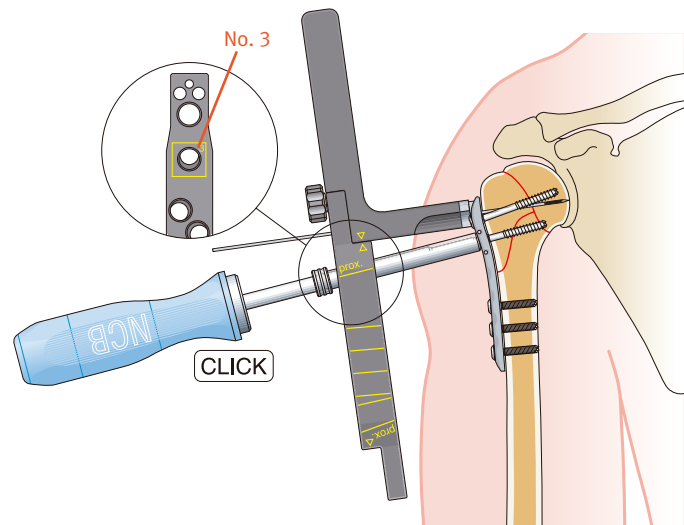
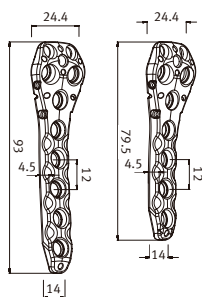


Fig. 51 Position of the Targeting Module to place screw no. 3

Implant Removal

To remove the *NCB-PH* Humerus Plate, remove all \varnothing 8mm Locking Screw Caps from the plate first, then loosen all bone screws. This prevents simultaneous rotation of the plate when removing the last bone screw. Remove all bone screws completely from the bone.

NCB-PH – Implants



NCB-PH Plate
Protasul®-64 Metal Alloy

Holes	Quantity*	Length	REF
4	2	79.5mm	02.03262.004
5	2	93mm	02.03262.005



NCB Cerclage Wire for T. minus plate
Stainless Steel-316L

L mm	∅ mm	Quantity*	REF
115	0.8	2	02.01362.108



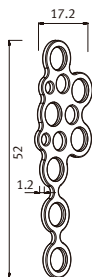
NCB Locking Screw Cap
Protasul-64 Metal Alloy

∅ mm	∅ mm	Quantity*	REF
8	3.5	20	02.03150.300



NCB Blind screw insert
Protasul-64 Metal Alloy

Quantity*	REF
2	02.03150.310

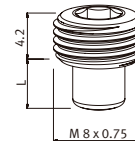


NCB T. minus plate, 7 holes
Protasul-Ti Metal Alloy

Holes	Quantity*	Length	REF
7	2	52mm	02.03262.101



NCB Spacer
(red, green, blue)
Protasul-64 Metal Alloy

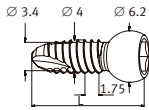


L mm	∅ mm	Quantity*	REF
1	3.5	2	02.03150.311
2	3.5	2	02.03150.312
3	3.5	2	02.03150.313

*Indicates the quantity in the standard graphic case.



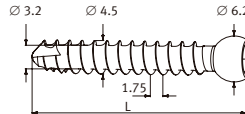
NCB Screw, self-tapping
Protasul-64 Metal Alloy



L mm	∅ mm	∅ mm	Quantity*	REF
20	4	3.5	4	02.03155.020
22	4	3.5	4	02.03155.022
24	4	3.5	4	02.03155.024
26	4	3.5	4	02.03155.026
28	4	3.5	4	02.03155.028
30	4	3.5	4	02.03155.030
32	4	3.5	4	02.03155.032
34	4	3.5	4	02.03155.034
36	4	3.5	4	02.03155.036
38	4	3.5	4	02.03155.038
40	4	3.5	4	02.03155.040
42	4	3.5	4	02.03155.042
44	4	3.5	4	02.03155.044
46	4	3.5	4	02.03155.046
48	4	3.5	4	02.03155.048
50	4	3.5	4	02.03155.050



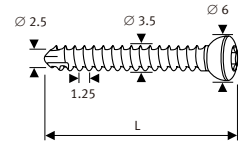
NCB Cancellous Screw, self-tapping
thread 32mm
Protasul-64 Metal Alloy



L mm	∅ mm	∅ mm	Quantity*	REF
30	4.5	3.5	4	02.03156.030
32	4.5	3.5	4	02.03156.032
34	4.5	3.5	4	02.03156.034
36	4.5	3.5	4	02.03156.036
38	4.5	3.5	4	02.03156.038
40	4.5	3.5	4	02.03156.040
42	4.5	3.5	4	02.03156.042
44	4.5	3.5	4	02.03156.044
46	4.5	3.5	4	02.03156.046
48	4.5	3.5	4	02.03156.048
50	4.5	3.5	4	02.03156.050



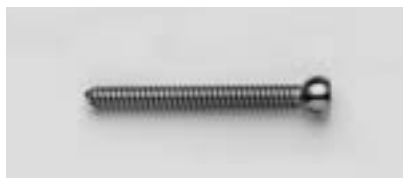
Cortical Screw, self-tapping
Protasul-100 Metal Alloy



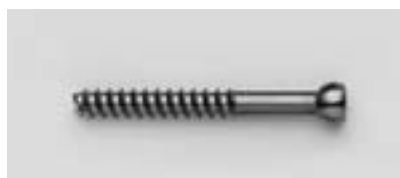
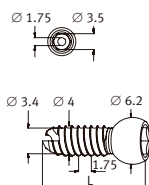
L mm	∅ mm	∅ mm	Quantity*	REF
20	3.5	3.5	4	02.3131.020
22	3.5	3.5	4	02.3131.022
24	3.5	3.5	4	02.3131.024
26	3.5	3.5	4	02.3131.026
28	3.5	3.5	4	02.3131.028
30	3.5	3.5	4	02.3131.030
32	3.5	3.5	4	02.3131.032
34	3.5	3.5	4	02.3131.034
36	3.5	3.5	4	02.3131.036
38	3.5	3.5	4	02.3131.038
40	3.5	3.5	4	02.3131.040

*Indicates the quantity in the standard graphic case.

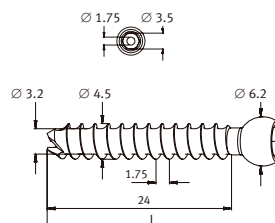
Implants for MIS Surgical Technique



NCB Cannulated Screw
self-drill
Protasul-64 Metal Alloy



NCB Cannulated Cancellous Screw
Self-Drill, thread 24mm Protasul-64
Metal Alloy

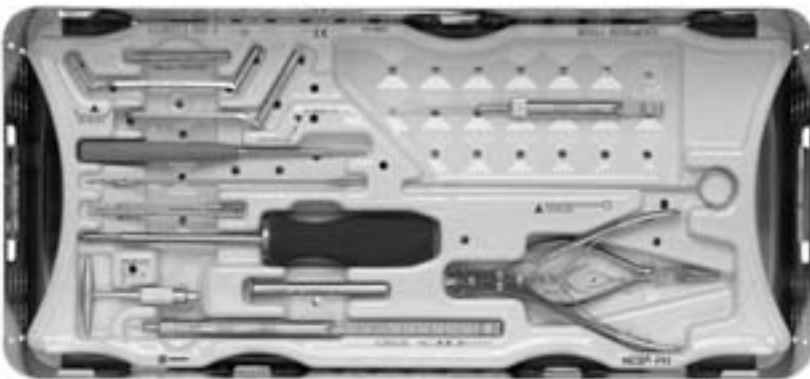


L mm	∅ mm	Quantity**	REF
20	4	4	02.03157.020
22	4	4	02.03157.022
24	4	4	02.03157.024
26	4	4	02.03157.026
28	4	4	02.03157.028
30	4	4	02.03157.030
32	4	4	02.03157.032
34	4	4	02.03157.034
36	4	4	02.03157.036
38	4	4	02.03157.038
40	4	4	02.03157.040
42	4	4	02.03157.042
44	4	4	02.03157.044
46	4	4	02.03157.046
48	4	4	02.03157.048
50	4	4	02.03157.050

L mm	∅ mm	Quantity**	REF
30	4.5	4	02.03158.030
32	4.5	4	02.03158.032
34	4.5	4	02.03158.034
36	4.5	4	02.03158.036
38	4.5	4	02.03158.038
40	4.5	4	02.03158.040
42	4.5	4	02.03158.042
44	4.5	4	02.03158.044
46	4.5	4	02.03158.046
48	4.5	4	02.03158.048
50	4.5	4	02.03158.050

**Indicates the quantity in the MIS graphic case module.

NCB Plating System – Sterilization Cases



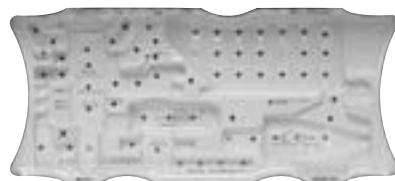
NCB-PH Sterilization Case
module implants

Quantity*	REF
1	02.00024.704



NCB-PH Sterilization Case Module
screw rack standard

Quantity*	REF
1	02.00024.705



NCB-PH Sterilization Case
module instruments

Quantity*	REF
1	02.00024.703

NCB-PH Sterilization Case Module**
cavity

Quantity*	REF
1	02.00024.706

NCB-PH Standard Sterilization Case
for open technique (with content)

Unit	REF
1	02.00024.700

NCB-PH Standard Sterilization Case
for open technique, includes
REF 02.00024.701 to 706
(no content)

Unit	REF
1	02.00024.710

NCB-PH Sterilization Case Lid

Quantity*	REF
1	02.00024.701

NCB-PH Sterilization Case Base (inox)

Quantity*	REF
1	02.00024.702

*Indicates the quantity in the standard sterilization case. **Optional case if ordered without MIS instruments.

NCB Plating System – Sterilization Case Modules for MIS Surgical Technique



NCB-PH Sterilization Case Module
 MIS Instruments and Screw Rack
 (with content)

Quantity**	REF
–	02.00024.750



NCB-PH Sterilization Case
 Module MIS Instruments

Quantity**	REF
1	02.00024.707



NCB-PH Sterilization Case
 Module MIS Screw Rack

Quantity**	REF
1	02.00024.708

**Indicates the quantity in the MIS Sterilization Case Module.

NCB Plating System – Instruments (Standard)



NCB Depth Gauge,
for NCB Screws Ø 5.0, 4.5 and 4.0mm

L mm	Quantity*	REF
110	1	02.00024.005



NCB Locking Screw holder for
Hexagonal Drivers 3.5mm

L mm	Quantity*	REF
95	1	02.00024.121



Wire Bending Forceps

L mm	Quantity*	REF
140	1	100.11.155



NCB Torque-Limiting Screwdriver

L mm	Ø mm	Quantity*	REF
245	3.5	1	02.00024.022



Reduction Forceps with serrated jaws,
with ratchet

L mm	Quantity*	REF
140	–	100.01.110



Double Drill Guides Ø 2.5 / 3.5 / 4.0mm

Quantity*	REF
1	100.40.035



NCB Drill Guide for
NCB Screws Ø 4.0 and 4.5mm

Ø mm	Quantity*	REF
3.3	1	02.00024.111



Bone-Holding Forceps Verbrugge,
with thread lock

L mm	Quantity*	REF
190	–	100.01.320



Screw Forceps self-holding

Quantity*	REF
1	100.90.005



NCB Drill Bit, with quick coupling

L mm	Ø mm	Quantity*	REF
195	3.3	1	02.00024.118



Wire Cutter, with double articulation,
for wire max. Ø 1.7mm

L mm	Quantity*	REF
165	1	100.11.115



Depth Gauge small,
for screws Ø 2.7, 3.5 and 4.0mm

L mm	Quantity*	REF
60	1	100.90.020

*Indicates the quantity in the standard sterilization case.



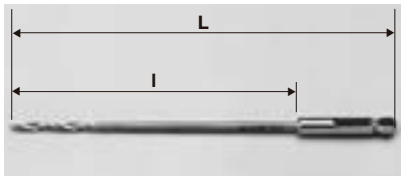
T-handle, with quick coupling

Quantity*	REF
—	100.90.210



Hexagonal Screwdriver small

L mm	∅ mm	Quantity*	REF
245	2.5	1	109.01.020



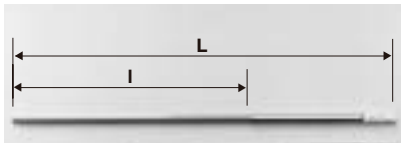
Drill Bit with quick coupling

L mm	l mm	∅ mm	Quantity*	REF
110	84	2.5	2	103.25.110



Kirschner Wire, with threaded tip

L mm	∅ mm	Quantity*	REF
150	2.0	10	299.20.150



Tap for quick coupling

L mm	l mm	∅ mm	Quantity*	REF
110	50	3.5	—	106.35.110



Countersink, for quick coupling
∅ 3.5 and 4.0mm

Quantity*	REF
—	108.01.035

*Indicates the quantity in the standard sterilization case.

NCB Plating System – Instruments for MIS Surgical Technique

NCB-PH Targeting Device radiolucent,
includes 02.00024.101 to 104

unit	REF
1	02.00024.100



NCB-PH Fixation Screw for
Targeting Device

Quantity**	REF
2	02.00024.104



NCB-PH Guide Wire with threaded tip

L mm	∅ mm	Quantity**	REF
190	1.6	10	02.01362.116



NCB-PH Handle for Targeting Device

Quantity**	REF
1	02.00024.101

NCB-PH Drill Guide assembly, includes
02.00024.113 to 116

unit	REF
1	02.00024.112



NCB-PH Measuring Device for
cannulated screws

Quantity**	REF
1	02.00024.119



NCB-PH Targeting Module for
Targeting Device

Quantity**	REF
1	02.00024.102



NCB-PH Tissue Protection Sleeve

∅	Quantity**	REF
10/8.0	2	02.00024.113
3/3.3	2	02.00024.114
3.3/1.6	2	02.00024.115
1.6	2	02.00024.116



NCB-PH Hexagonal Screwdriver
cannulated short hex

L mm	∅ mm	Quantity**	REF
245	3.5	1	02.00024.120



NCB-PH Connection Screw for
Targeting Device

Quantity**	REF
1	02.00024.103



NCB Cannulated Drill Bit with
quick coupling

L mm	∅ mm	Quantity**	REF
195	3.3	2	02.00024.117

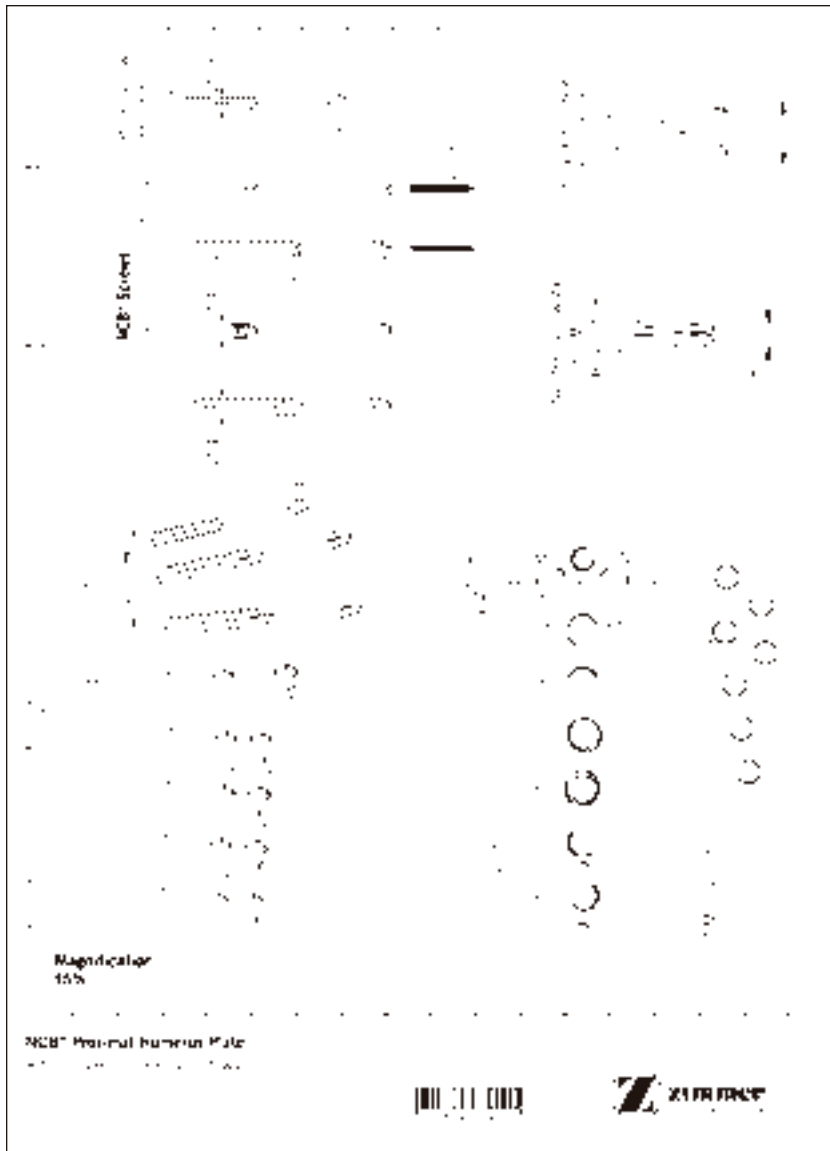


Cleaning Wire

L mm	∅ mm	Quantity**	REF
230	1.6	1	110.06.200

**Indicates the quantity in the MIS sterilization case module.

Planning Template



X-ray template REF 06.01238.000



Please refer to package insert for complete product information, including contraindications, warnings, precautions, and adverse effects.

Contact your Zimmer representative or visit us at www.zimmer.com

