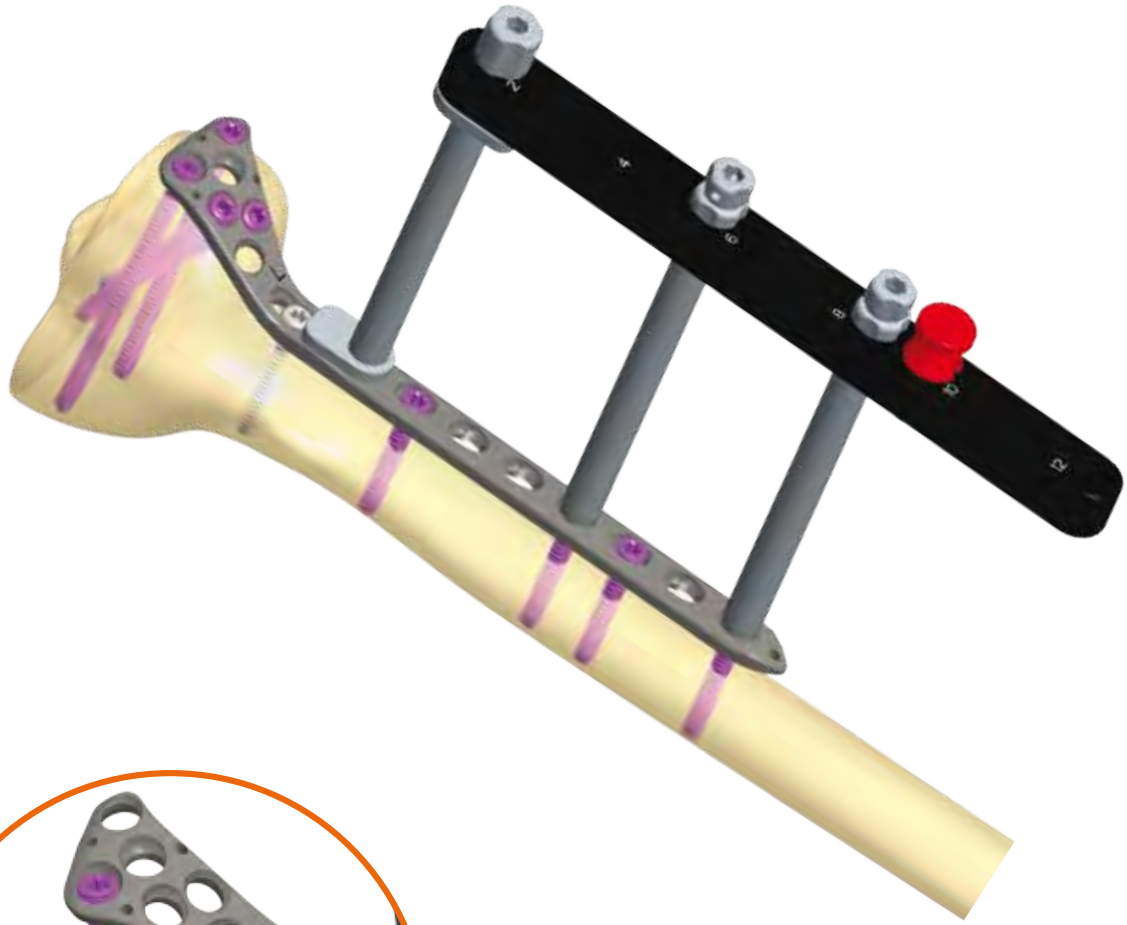
YDFIX Proximal Tibia



References

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Canakkale University

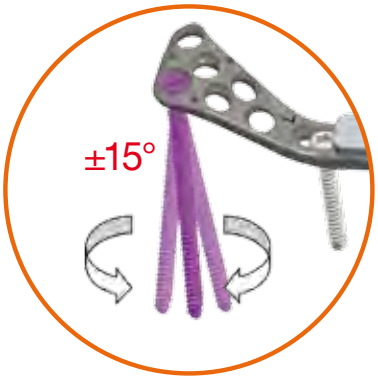
Content

1 | Introduction

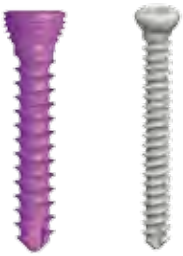
Ydfix plates, serving to heal peri- and intraarticular fractures, have a new family member, YPT (Ydfix Proximal Tibia) which goes to proximal part of the tibia bone offering the same usual high end features that we got used to from Ydfix plates.
The comfort and security of polyaxial locking is further enhanced by a minimally invasive radiolucent targeting arm for the tail. To reach stabile-enough locking the system uses Ø 5,1 mm polyaxial and cortical screws. They represent the outstanding features of Ydfix screws together with excellent mechanical properties.

1.1 | The implant

- Polyaxial angle stabilized system in step - free ±15 deg angulation of insertion



- Optimal, pre-determined screw directions in the holes
- Maximum 3 times of correction possibility when misidentifying the correct screw direction
- Thinned head, the implant does not interfere with the soft tissues
- Rounded edges to protect nearby soft tissues
- Oval hole for plate positioning
- Ability to perform minimally invasive surgery
- Self tapping but blunt ended screws to avoid tissue irritation

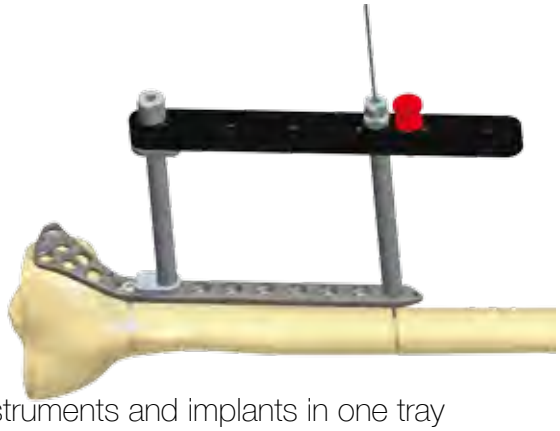


- Anodized Titanium raw material
- Torx recess screws

1.2 | The instruments

- Capable of drilling in preset and ±15 deg directions step – free
- Easy to assemble targeting head for choosing either polyaxial or monoaxial fixation in the pre-determined directions.

- Radio translucent targeting arm for the tail holes



- Instruments and implants in one tray
- Optimized instruments
- Color coded torque limiting screwdriver

1.3 | Indications

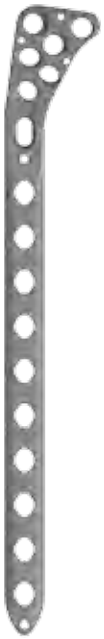
Peri- and intra-articular fractures of the proximal tibia.

2.1 | Ydfix Proximal Tibia plate

Holes on tail*	Side	Length
4H	**right/left**	**130,5 mm**
6H	**right/left**	**162,5 mm**
8H	**right/left**	**194,5 mm**
10H	**right/left**	**226,5 mm**
12H	**right/left**	**258,5 mm**

Cross section (width x thickness)

Head: 34,4 x 4 mm
Tail: 14 x 5 mm



Raw material

anodized Titanium

Color

grey

* Number of holes is without the oval hole!

2.2 | Ydfix screw Ø5,1 mm

Length (mm)

24 - 80

Raw material

anodized Titanium

Color

purple

2.3 | Cortical screw - TX Ø5,1 mm

Length (mm)

24 - 40

Raw material

anodized Titanium

Color

grey

2.4 | Ydfix screw Ø6,5 mm

Length (mm)

65 - 80

Raw material

anodized titanium

Color

grey

3 | Surgical description

3.1 | Patient positioning

In supine position on translucent surgical table.

3.2 | Plate selection

During preoperative planning select the most appropriate plate for the fracture and the anatomy of the patient. Consider that a little longer plate is more acceptable than a too short one.

3.3 | Assembly of plate and targeting arm

The system enables poly- and monoaxial locking on the head of the plate. See point 3.11.1 for the monoaxial head targeting.

Place the targeting arm on the plate while paying attention to the small peg entering into its hole on the plate. Mount the carbon arm and fix the system to the plate as per the image.

Check accuracy with soft tissue protector, drill sleeve and the Ø 4 mm drillbit.

In case we do not use the longest plate put the indicator plug into the arm to represent the position of the last hole.

3.4 | Incision

Longitudinal anterolateral incision that shall be continued in arched form at the joint height, parapatellary.

3.5 | Modellation of the plate

For optimal fitting we can modellate the plate if needed. Use table bending device for that purpose.

Attention!

After bending the plate the targeting devices on the head and the tail cannot be used!

3.6 | Insertion of the plate

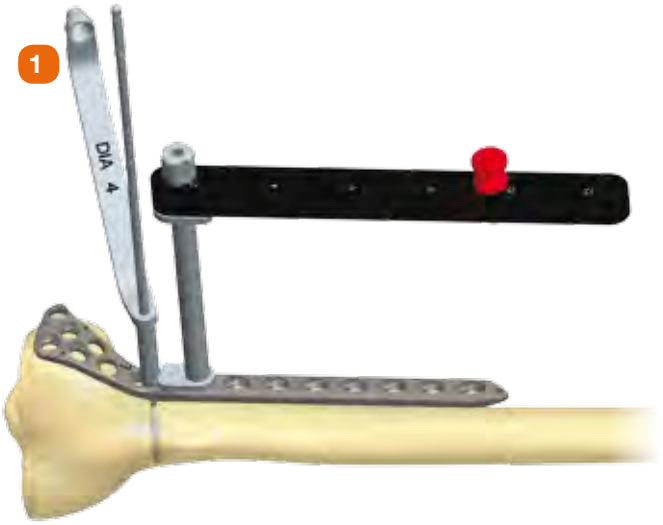
The plate can be introduced minimally invasively. Guide the plate mounted on the targeting arm on the bone surface towards the distal. Optimal position shall be checked with image intensifier.

The plate can be fixed with Kirschner wires at this step but the fine tuning of the position with the oval holes is only possible after the wires are removed.

3.7 | Positioning with the oval hole

Lock the plate in the oval hole with a grey cortical screw.

Pre drilling takes place through the straight side of the Ø4 mm double drill sleeve. After setting the optimal angle perform drilling with the Ø4 mm drillbit. (1)



3 | Surgical description

Measure the necessary screw length.

Remove the Ø4 mm double drill sleeve. Hook the gauge to the other side of the hole while moving the reader on the bone surface. Read length at the red mark. (2)

Correct holding of the length gauge.

The plate is fixed to the bone with a Ø5,1 mm cortical screw in the oval hole. The screw is not fully tightened until the fine tuning of the position is done. Afterwards it is to be locked firmly. (3)

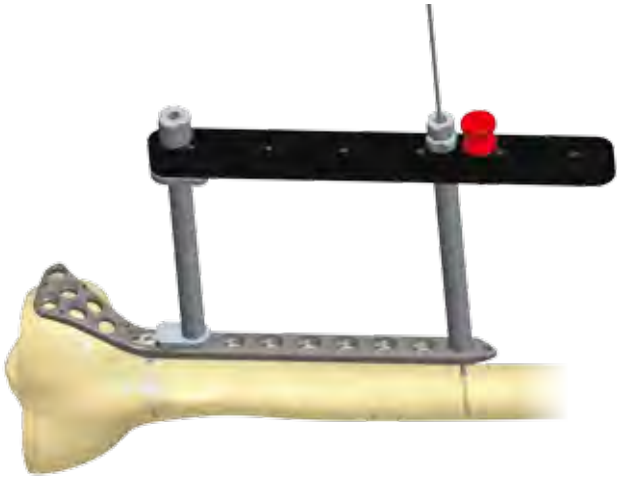
3.8 | Closing the frame

Perform incision at the most distal hole of the plate used. Push the Ø8 mm soft tissue protector into the hole and turn the drill sleeve into the hole of the plate. This way the plate and the carbon arm are aligned. The plate can be fixed - either at the most distal hole or through the small hole on the tip of the plate - with Kirschner wires to the bone.

Attention!

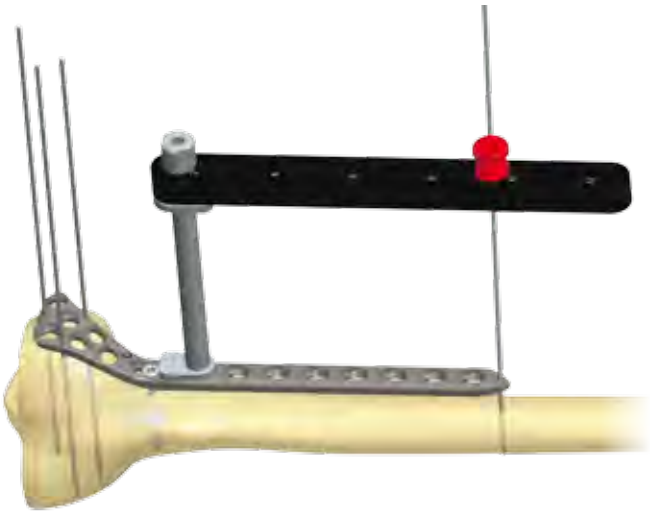
This step is absolutely necessary for the perfect targeting.

In case sleeves cannot be turned by the hand, use the T25 screwdriver!



3.9 | Temporary fixation of the plate

Fix the plate to the bone with Kirschner wires through the corresponding holes on the head or at the tip of the plate. In the latter the wires can be led from the sides of the carbon arm.



3.10 | Fixation of the head

There are 6 locking options on the head. In each hole mono- and polyaxial locking is also possible.

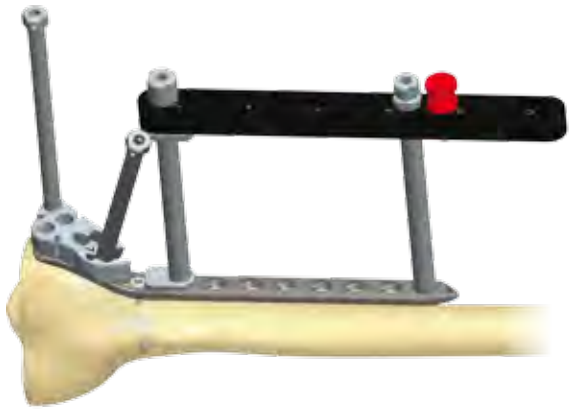
3.11 | Monoaxial locking

In this case the screws can be inserted in the anatomically optimal direction. The screw-plate connection will be angle stabilized ensuring loosening-free locking.

3.11.1 | Assembly of the head block

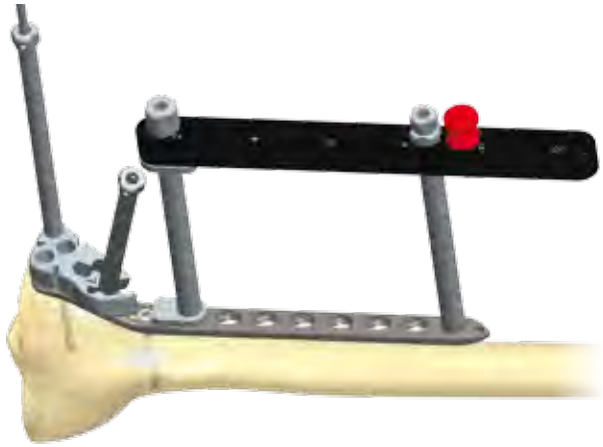
Fix the removable head as per the image.

Drive a Ø4 mm sleeve into the most distal hole of the head of the plate and click the removable head on this from the direction of the patella. Drive another sleeve though the removable head into the plate thus ensuring rotation stability of the removable head.



3.11.2 | Monoaxial drilling - head

Drill through the sleeve for the Ø5,1 mm screw while using image intensifier control. The spiral dill to be used is Ø4 mm in diameter.

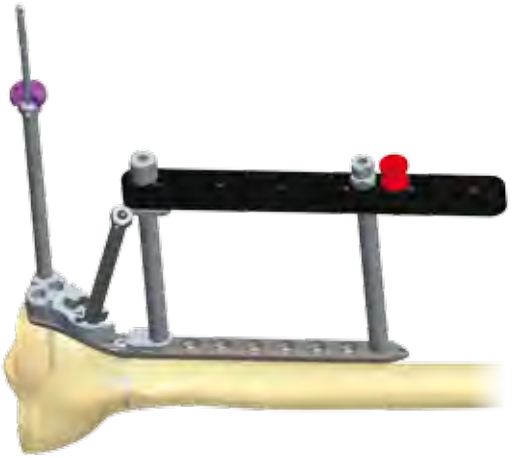


3.11.3 | Length gauging – head

Length gauging can take place in two ways.

As per the first, previously already detailed, use a hooked gauge. Hook it into the other wall of the hole, push the moving part on the bone surface and read length.

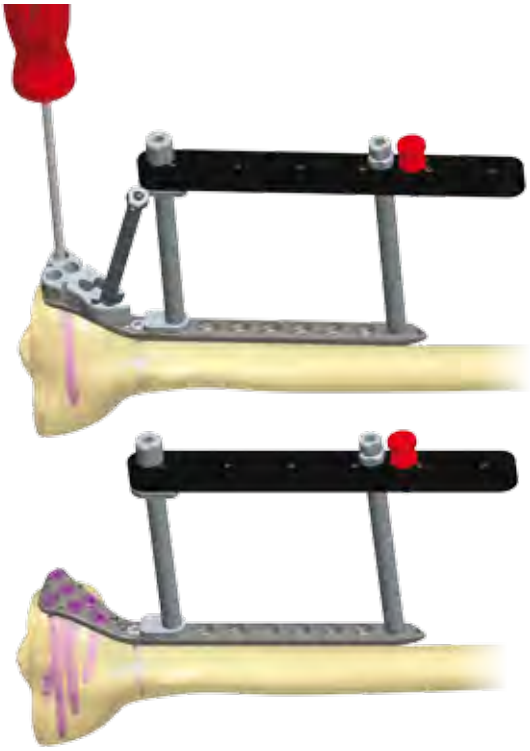
The other method uses the purple drill stop over the Ø4 mm drillbit just above the spiral part. Perform drilling through the sleeve. The necessary length can be read on the scale of the drillbit at the drill stop's side facing the sleeve.



3.11.4 | Screw insertion – head

Drive the selected Ø5,1 mm screw with the T25/3,5 Nm torque screwdriver. Using torque screwdriver reduces chances of cold welding during the healing period.

Repeat the above steps in case of all necessary screws. This way they are inserted in the anatomically optimal direction.



3.11.5 | Drilling – tail

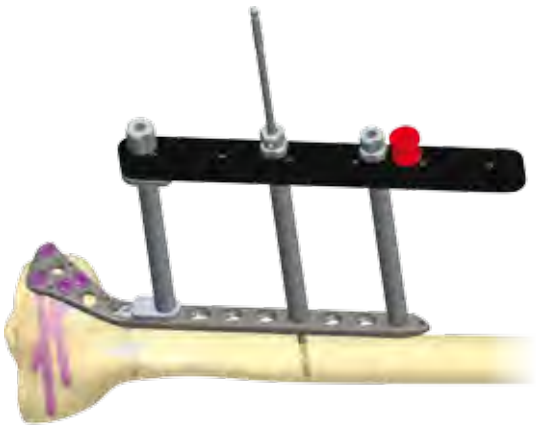
YPT system uses radio translucent arm for minimally invasive targeting of the tail.

Attention!

The targeting arm can be used only with intact, non-modellated plate. Otherwise drilling accuracy greatly reduces and plate and/or targeting arm damages might occur.

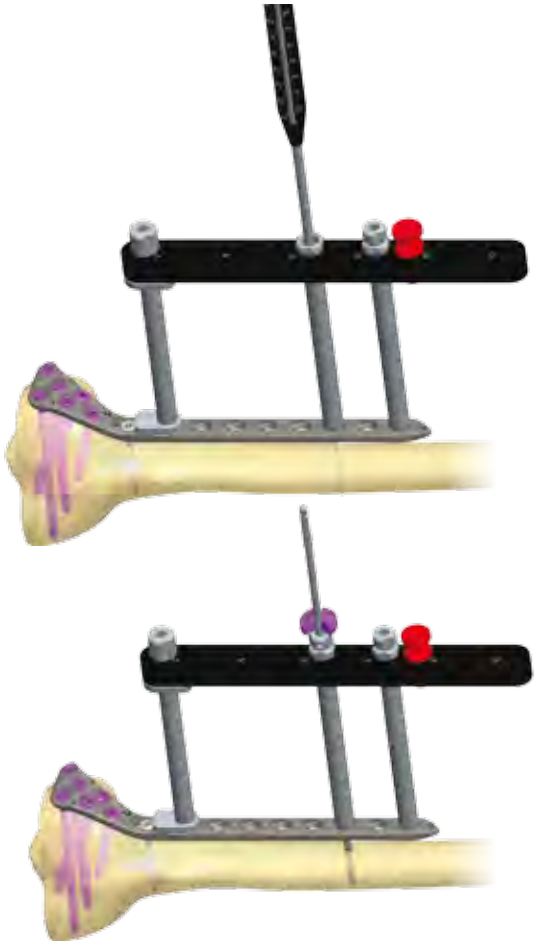
On the tail the traditional monoaxial locking is suggested.

Push and drive the soft tissue protector and the drill sleeve into the hole's thread you wish to use. Perform drilling with the Ø4 mm drillbit. Remove the Ø4 mm drill sleeve.



3.11.6 | Length gauging – tail

To determine screw length either use length gauge or the drill stop.



3.11.7 | Screw insertion – tail

Turn in the selected screw with the T25/3,5 Nm screwdriver.

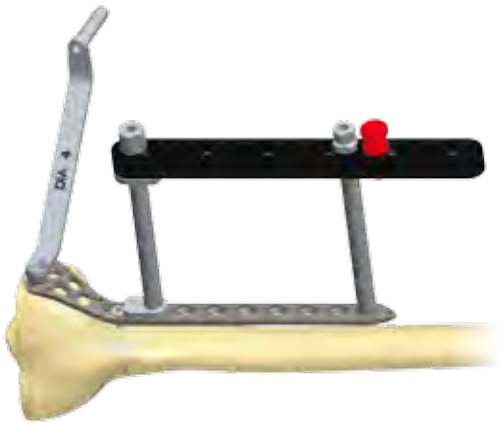
3.12 | Polyaxial locking

In case of polyaxial locking we have the freedom of ±15 degrees from the anatomically optimal direction. Use the system without the removable head to have the possibility of the six polyaxial locking on the head.

3.12.1 | Polyaxial drilling – head

Place the conical end of the Ø4 mm double drill sleeve into the hole. It fits exactly into the hole and its symmetry axis is in the anatomically optimal direction (the same direction in which monoaxial locking takes place). Thus it is ensured that the ±15 degree direction is always from the anatomically optimal direction.

Perform drilling in the desired direction with the Ø4 mm drillbit.

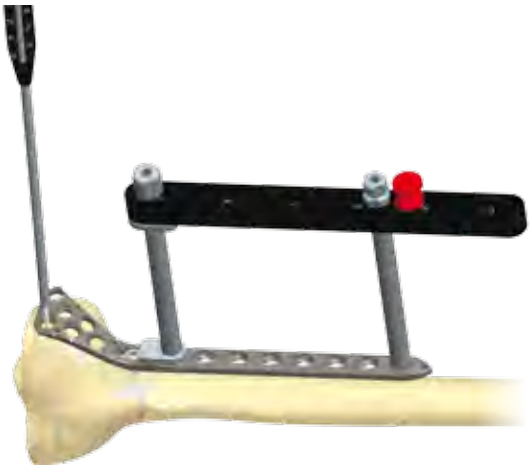


3.12.2 | Length gauging – head

Use the length gauge without the sleeve.

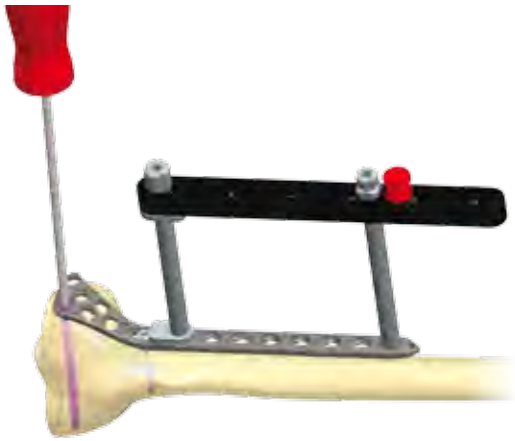
Attention!

The drillstop method cannot be used when drilling through the conical end of the double drill sleeve.



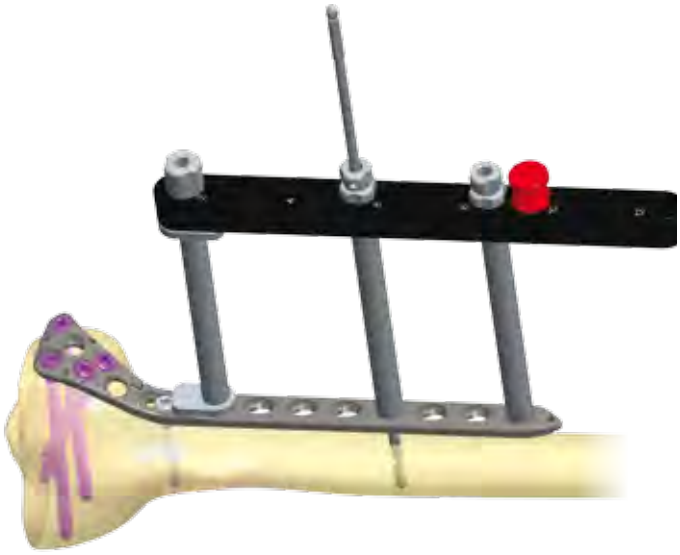
3.12.3 | Screw insertion – head

Drive in the selected screw with the T25/3,5 Nm torque limiting screwdriver.



3.12.4 | Drilling – tail

YPT system uses radio translucent arm for minimally invasive targeting of the tail.



Attention!

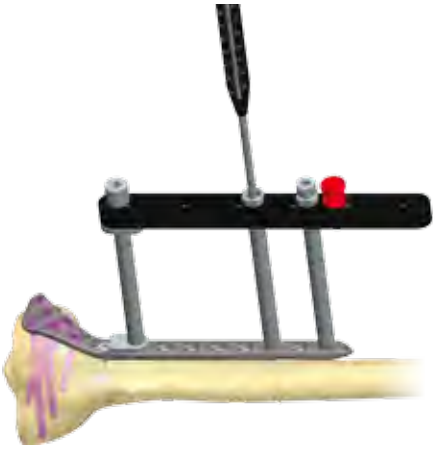
The targeting arm can be used only with intact, non-modellated plate. Otherwise drilling accuracy greatly reduces and plate and/or targeting arm damages might occur.

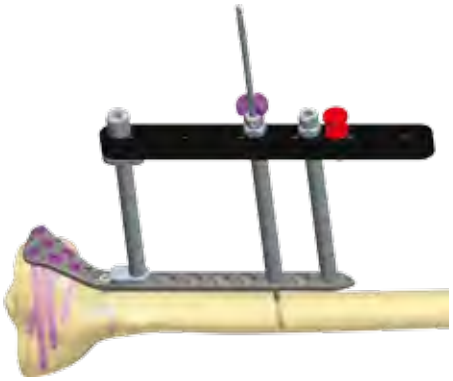
On the tail the traditional monoaxial locking is suggested.

Push and drive the soft tissue protector and the drill sleeve into the hole's thread you wish to use. Perform drilling with the Ø4 mm drillbit. Remove the Ø4 mm drill sleeve.

3.12.5 | Length gauging – tail

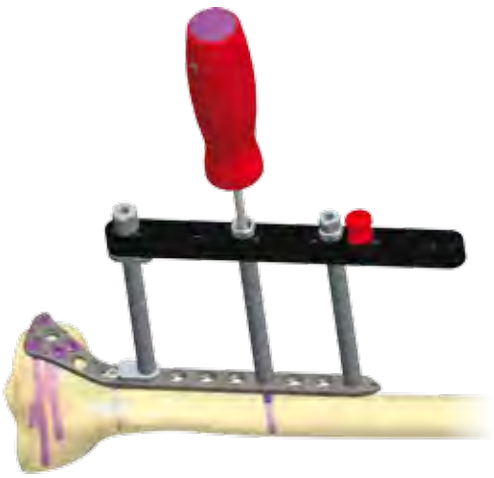
To determine screw length either use length gauge or the drill stop.





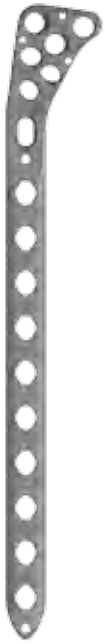
3.12.6 | Screw insertion – tail

Turn in the selected screw with the T25/3,5 Nm screwdriver.



4 | Implant list

4.1 | Ydfix proximal tibia plate



Anodized Titanium

Cat no	Size	Length (mm)
3008402004	4H/left	130,5
3008402006	6H/left	162,5
3008402008	8H/left	194,5
3008402010	10H/left	226,5
3008402012	12H/left	258,5
3008401004	4H/right	130,5
3008401006	6H/right	162,5
3008401008	8H/right	194,5
3008401010	10H/right	226,5
3008401012	12H/right	258,5

4.2 | Ydfix screw Ø5,1 mm

Anodized Titanium

Cat. no	Size (mm)
1017451024	24
1017451026	26
1017451028	28
1017451030	30
1017451032	32
1017451034	34
1017451036	36
1017451038	38
1017451040	40
1017451042	42
1017451044	44
1017451046	46
1017451048	48
1017451050	50
1017451055	55
1017451060	60
1017451065	65
1017451070	70
1017451075	75
1017451080	80

4.3 | Cortical screw - TX Ø5,1 mm

Anodized Titanium

Cat. no	Size (mm)
1032451024	24
1032451026	26
1032451028	28
1032451030	30
1032451032	32
1032451034	34
1032451036	36
1032451038	38
1032451040	40

4.4 | Ydfix screw Ø6,5 mm

Anodized Titanium

Cat no	Size (mm)
1057465065	65
1057465070	70
1057465075	75
1057465080	80

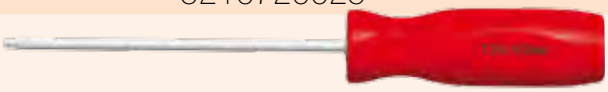
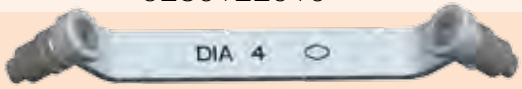
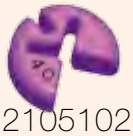
5 | Instrument list

5.1 | Filled up tray

Surgical instruments

Description	Size	Qantity	Cat. no
Screwdriver	T25	1	5210720025
Torque screwdriver	T25/3,5Nm	1	5210510046
Spiral drill	4x260 mm	1	5280122915
Double drill sleeve - PAS	4 mm	1	5280122910
Double drill sleeve - V	Large	1	5275214902
Kirschner wire	2x230 mm	5	5937520230
Screw forceps		1	5939999002
Drill stop	4 mm	2	5210510240
Length gauge	20-90 mm	1	5280122912
Targeting arm - YPT		1	5280122909
Torque screwdriver for motors	T25/3,5 Nm	1	5210510048
Tray - YPT		1	5233800023
Filled up tray (YPT)		1	5233800022

5.2 | Instruments

Screwdriver (T25)	 5210720025
Torque screwdriver (T25/3,5 Nm)	 5210510046
Spiral drill (4x260 mm)	5280122915
Double drill sleeve - PAS (4 mm)	 5280122910
Double drill sleeve - V (Large)	 5275214902
Kirschner wire (2x230 mm)	5937520230
Screw forceps	 5939999002
Drill stop (4 mm)	 5210510240
Length gauge (20-90 mm)	 5280122912
Targeting arm - YPT	 5280122909
Torque screwdriver for motors (T25)	 5210510048

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