YDFIX Pedi Plate System

For Osteotomies and Fracture Fixation
of the Proximal and Distal Femur

SURGICAL TECHNIQUE

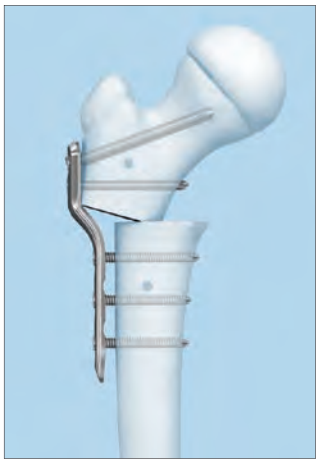
YDFIX PEDI PLATES

The Pediatric Plate System is designed for stable fi xation of varus, valgus or rotational osteotomies and trauma applications in pediatric orthopaedics and is designed to meet the specifi c requirements of pediatric orthopaedic surgery.

The Pediatric Plate System offers a wide range of locking compression plates along with a surgical tech-nique specifi cally developed for the pediatric patient. The Pediatric Plates have a universal design for the left and right femur. The head of the plate features threaded holes for locking screws that either angle into the femoral neck in the proximal femur or parallel to the growth plate in the distal femur in place of the tradi-tional angled blade.

In the proximal femur plates, an additional diverging calcar screw ensures increased fi xation in the bone. The 100˚ and 110˚ plates are designed with an offset for osteotomies. The 2.7 mm plates have a 6 mm offset; the 3.5 mm plates have an 8 mm offset and the 5.0 mm plates have a 10 mm offset.

Plate shafts feature limited-contact profil es and Combi holes. The Combi hole combines a dynamic compression unit (DCU) hole with a locking screw hole. Combi holes provide the choice of axial compression and locking capability throughout the length of the plate shaft.



Angular stability
Angular stability reduces the risk of primary and second-ary loss of correction. Improved connections between screw and plate, as well as within the cortical bone, make casting unnecessary in the majority of cases.

Intraoperative correction and flexibility
Initial plate positioning with Kirschner wires allows for intraoperative fl exibility and correction. The range of plate sizes, angles and screw lengths allows optimal patient fi t.

Medialization
Additional medialization can be obtained using the 3.5 mm and 5.0 mm Pediatric Plates, requiring one offset for each plate size.

Low-profile design
Plate design and locking construct reduce muscle disrup-tion and soft tissue irritation.

Pediatric YDFIX plates are available in the following sizes and angles.*

Angle	Recommended Use	2.7 mm Plates	3.5 mm and 5.0 mm Plates
90˚ (Condylar)	Distal femur osteotomies and fractures		 3, 5, or 7 holes
100˚	Varus osteotomies	 3 holes	 3 holes
110˚	Varus osteotomies	 3 holes	 3 holes
120˚**	Fractures		 4 holes
130˚	Fractures	 3 holes	 3, 5, 7 or 9 holes
140˚	Valgus osteotomies		 3 holes
150˚**	Valgus osteotomies		 3 holes

* screws sold separately
** additionally available

INTENDED USE, INDICATIONS AND CONTRAINDICATIONS

Intended Use
Pediatric Plates are intended for temporary fixation, correction or stabilization of bones in various anatomical regions.

Indications
The Pediatric Plate System consists of different plates for different indications.

The **Pediatric Hip Plate 2.7** is intended for use in infants up to three years, depending on body weight and bone quality.

- Neglected dislocation of the hip in combination with open reduction
- Developmental coxa valga
- Severe hip dysplasia

The **Pediatric Hip Plate for varus osteotomies** is intended for use in pediatric patients up to adolescence and for small-stature adult patients.

Specific indications include:

- Idiopathic valgus hip
- Idiopathic and acquired subluxation of the femoral head
- Femoral head subluxation in neuromuscular diseases/problems
- High retroversion and anteversion in combination with a high CCD-angle

The **Pediatric Hip Plate for valgus osteotomies** is intended for use in pediatric patients up to adolescence and for small stature adult patients.

Specific indications include:

- High riding of greater trochanter and low shortening of the leg
- Perthes' disease
- Congenital pseudarthrosis of the femoral neck Deformity of SCFE (Slipped Capital Femoral Epiphysis)
- PFFD (Proximal Femoral Focal Deficiency)
- Idiopathic coxa vara
- Posttraumatic pseudarthrosis of the femoral neck

Pediatric Hip Plate (3.5 & 5.0) 120° & 130° for fracture treatment and rotation correction is indi-cated for trans-trochanteric fractures with sufficient medial support, and femoral neck fractures Type I to III.

The **Pediatric Condylar Plate** is intended for use in pediatric patients up to adolescence and for small-stature adult patients.

Specific indications include:

- Fixed flexion contracture of knee in neurological conditions
- Deformity correction in the distal femur
- Rotational malalignment of the femur (if distal correction preferred)
- Supracondylar fractures of the femur

Contraindications

No specific contraindications.

Precautions:

- **Make sure to choose the appropriate plate corresponding to age, size and bone quality of the patient.**
- **Ensure that the plate selected has a neck/screw angle which corresponds to preoperative planning.**

Determine point of reference

The femoral shaft or neck can be used as a reference while planning and later inserting the positioning Kirschner wire.

a) Shaft referencing
To calculate the correction angle, subtract the desired neck/shaft angle from the initial pathological neck/shaft angle.

For example:
Current pathological neck/shaft angle: 150°
Desired neck/shaft angle: 120°
Correction angle: 30°

To calculate the insertion angle of the positioning Kirschner wire using the aiming block and the positioner for aiming block on the shaft, add together the newly calculated correction angle and the plate angle.

For example:
110° Plate angle + 30° correction angle = 140°
Insert positioning Kirschner wire at 140° to the shaft

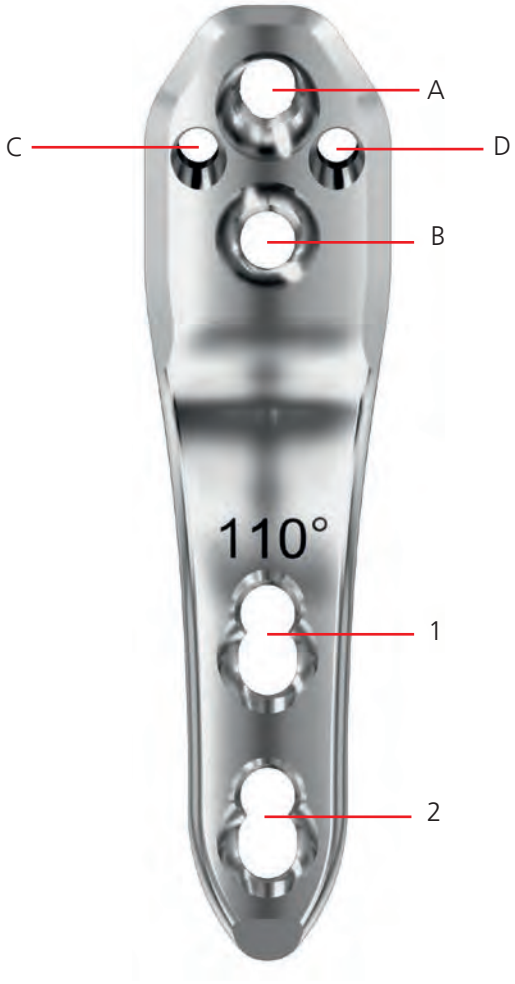
b) Neck referencing
The positioning Kirschner wire is inserted at an angle to the femoral neck. To calculate the insertion angle of the positioning Kirschner wire using the aiming block and positioner for aiming block, subtract the plate angle from the desired neck/shaft angle.

For example:
Desired neck/shaft angle: 130°
Plate angle: 110°
Insert positioning Kirschner wire at 20°
to the femoral neck

Plate Type

This surgical technique focuses on the Pediatric Hip Plate 2.7 and describes a varus osteotomy of the proxi-mal femur using a Pediatric Hip Plate 2.7, 110°.

The surgical technique refers to screw holes using the designation as marked in this picture.

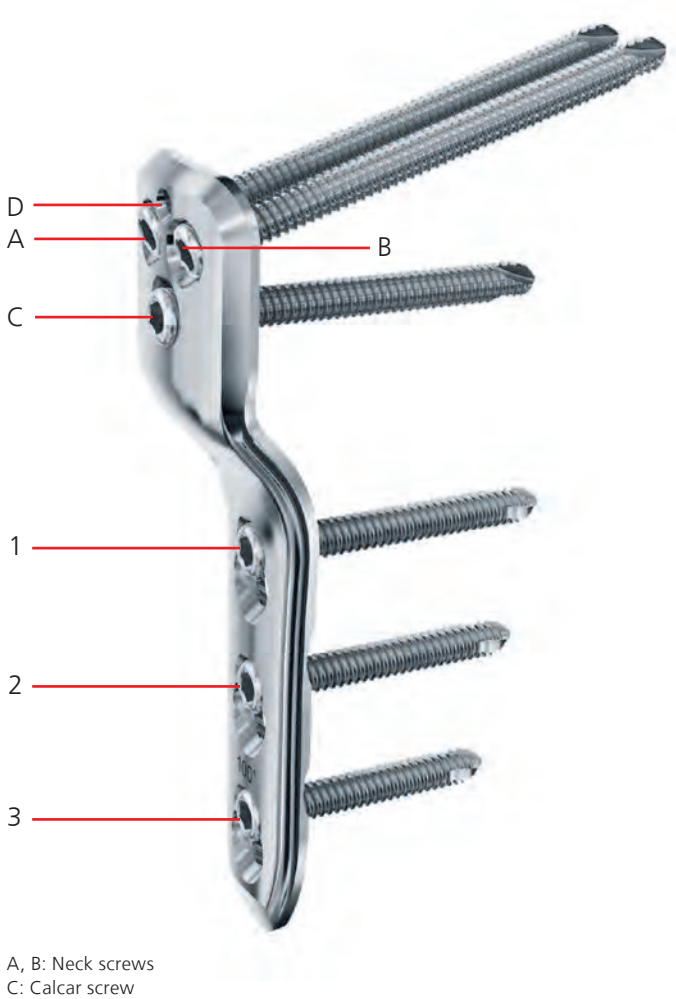


A: Neck screw
B: Calcar screw
C and D: Positioning Kirschner wires
1 and 2: LCP or cortex shaft screws

Plate Type

This technique guide focuses on the LCP Pediatric Hip Plates 3.5/5.0 and describes a varus osteotomy of the proximal femur with a 110° varus plate 3.5 (corresponds to implant Art. No. 02108311).

The surgical technique refers to screw holes where applicable. Please see the designation of each hole as marked.

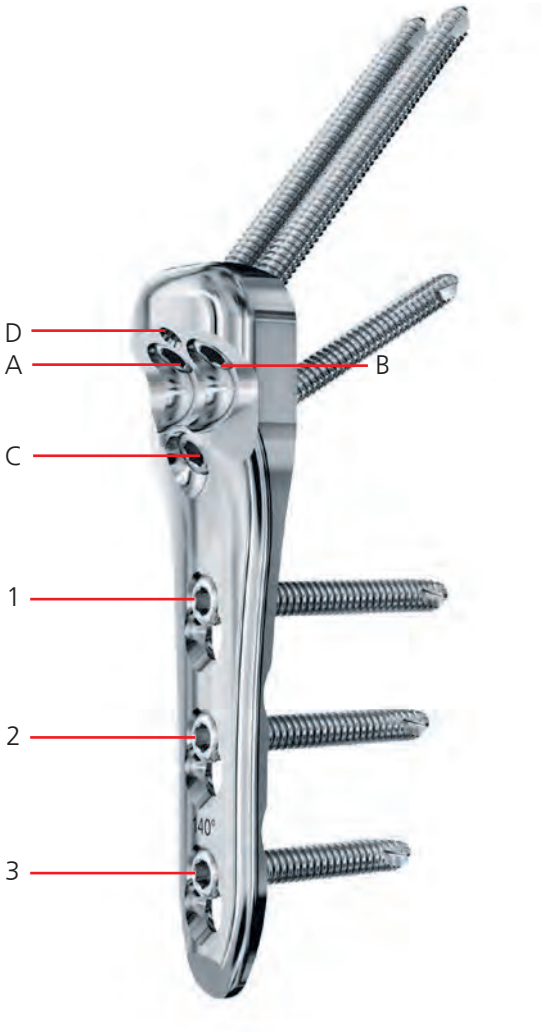


A, B: Neck screws
C: Calcar screw
D: Positioning Kirschner wire
1, 2 and 3: LCP or cortex shaft screws

Plate Type

This technique guide focuses on the LCP Pediatric Hip Plates and describes a valgus osteotomy of the proximal femur with 140° straight valgus plate (corresponds to implant Art. No. 3069635140).

The surgical technique refers to screw holes where applicable. Please see the designation of each hole as marked.



A, B: Neck screws
C: Calcar screw
D: Positioning Kirschner wire
1, 2 and 3: LCP or cortex shaft screws

2.7 mm Pediatric LCP Hip Plates*

	Angle	Shaft Holes	Length (mm)	Proximal/Distal Width (mm)
3069427100	100°	3	46	12/8
3069427110	110°	3	46	12/8
3069427120	130°	3	46	12/8

3.5 mm Pediatric LCP Hip Plates*

	Angle	Shaft Holes	Length (mm)	Proximal/Distal Width (mm)
02108310	100°	3	73	19/12
02108311	110°	3	73	19/12
02108313	120°	4	75	19/12
02108330	130°	3	62	19/12
02108331	130°	5	88	19/12
02108332	130°	7	114	19/12
02108333	130°	9	140	19/12
3069635140	140°	3	70	19/12
02108315	150°	3	58	19/12

5.0 mm Pediatric LCP Hip Plates*

	Angle	Shaft Holes	Length (mm)	Proximal/Distal Width (mm)
02108320	100°	3	90	23/15
02108321	110°	3	90	23/15
02108323	120°	4	95	23/15
02108340	130°	3	79	23/15
02108341	130°	5	111	23/15
02108342	130°	7	143	23/15
02108343	130°	9	175	23/15
02108326	140°	3	90	23/15
02108325	150°	3	74	23/15

3.5 mm Pediatric LCP Condylar Plates*

	Angle	Shaft Holes	Length (mm)	Proximal/Distal Width (mm)
02108410	90°	3	75	19/12
02108411	90°	5	101	19/12
02108412	90°	7	127	19/12

5.0 mm Pediatric LCP Condylar Plates*

	Angle	Shaft Holes	Length (mm)	Proximal/Distal Width (mm)
02108420	90°	3	95	23/15
02108421	90°	5	127	23/15
02108422	90°	7	159	23/15

Screw overview
Cortex screws, self-tapping

202866 – 202969	Cortex Screws Stardrive ∅ 2.7 mm, lengths 6–60 mm

02200016 – 02200070	Cortex Screws Stardrive ∅ 3.5 mm, self-tapping, lengths 16–70 mm
214818 – 214870	Cortex Screws ∅ 4.5 mm, self-tapping, lengths 18–70 mm

Locking screws, self-tapping,

202206 – 202260	Locking Screws Stardrive ∅ 2.7 mm (head LCP 2.4), lengths 6–60 mm
213016 – 213060	Locking Screws ∅ 3.5 mm, lengths 16–60 mm
212104 – 212124	Locking Screws Stardrive ∅ 3.5 mm, lengths 16–60 mm
213318 – 213375	Locking Screws ∅ 5.0 mm, lengths 18–75 mm
212203 – 212224	Locking Screws Stardrive ∅ 5.0 mm, lengths 18–75 mm

INSTRUMENTS

Aiming Blocks

03108033	Aiming Block for Screws ∅ 2.7 mm, for LCP Pediatric Hip Plates 2.7	
03108001	Aiming Block for Screws ∅ 3.5 mm, for LCP Pediatric Hip Plates	
03108002	Aiming Block for Screws ∅ 5.0 mm, for LCP Pediatric Hip Plates	

Positioners for Aiming Blocks

03108034	Positioner for Aiming Block, for LCP Pediatric Hip Plates 2.7	
03108006	Positioner for Aiming Block	

Positioners for Osteotomy

03108039	Positioner for Osteotomy, for LCP Pediatric Hip Plates 2.7	
03108008	Positioner for Osteotomy	

Drill Sleeves and Reduction Sleeve

03108036	LCP Drill Sleeve 2.7, for Drill Bits ∅ 2.0 mm, for LCP Pediatric Hip Plates 2.7	
03108009	LCP Drill Sleeve 3.5, for Drill Bits ∅ 2.8 mm, for LCP Pediatric Hip Plate	
03108010	LCP Drill Sleeve 5.0, for Drill Bits ∅ 4.3 mm, for LCP Pediatric Hip Plate	
03108004	Reduction Sleeve 4.3/2.8	
03108037	Direct Measuring Device for Kirschner Wires ∅ 2.0 mm, for LCP Pediatric Hip Plates 2.7	
03108003	Direct Measuring Device for Kirschner Wires ∅ 2.8 mm, length 200 mm	

Positioning Wires, Guide Wires and Adapter

29220001	Kirschner Wire ∅ 2.0 mm with trocar tip, length 150 mm, Stainless Steel	
292200S	Kirschner Wire ∅ 2.0 mm with trocar tip, length 150 mm, Stainless Steel – Sterile	
29279001	Kirschner Wire ∅ 2.0 mm with threaded tip, length 150/15 mm, Stainless Steel	
292790S	Kirschner Wire ∅ 2.0 mm with threaded tip, length 150/15 mm, Stainless Steel – Sterile	
292650	Guide Wire ∅ 2.0 mm with threaded tip with trocar, length 230 mm, Stainless Steel	
03108005*	Kirschner Wire ∅ 2.8 mm with spade point tip	
03108040*	Kirschner Wire Adaptor	
29216001	Kirschner Wire ∅ 1.6 mm w/trocar tip, L 150 mm	
292160S	Kirschner Wire ∅ 1.6 mm w/trocar tip, L 150 mm, sterile	
29212001	Kirschner Wire ∅ 1.25 mm w/trocar tip, L 150 mm	
292120S	Kirschner Wire ∅ 1.25 mm w/trocar tip, L 150 mm, sterile	

Drill Bits

323062	Drill Bit ∅ 2.0 mm, with double marking, length 140/115 mm, 3-flute, for Quick Coupling	
310284	LCP Drill Bit ∅ 2.8 mm with Stop, length 165 mm, 2-flute, for Quick Coupling	
310250	Drill Bit ∅ 2.5 mm, length 110/85 mm, 2-flute, for Quick Coupling	
310280	Drill Bit ∅ 2.7 mm, length 125/100 mm, 2-flute, for Quick Coupling	
310310	Drill Bit ∅ 3.2 mm, length 145/120 mm, 2-flute, for Quick Coupling	
310430	LCP Drill Bit ∅ 4.3 mm with Stop, length 221 mm, 2-flute, for Quick Coupling	

Drill Guides

312240	Double Drill Guide 2.7/2.0	
323260	Universal Drill Guide 2.7	
323360	Universal Drill Guide 3.5	
312280	Double Drill Guide 3.5/2.5	
312460	Double Drill Guide 4.5/3.2	

Depth Gauges

319010	Depth Gauge for Screws ∅ 2.7 to 4.0 mm, measuring range up to 60 mm	
03503036	Depth Gauge for MatrixMANDIBLE, measuring range from 6 to 40 mm	
319100	Depth Gauge for Screws ∅ 4.5 to 6.5 mm, measuring range up to 110 mm	

Screwdrivers and Screwdriver shafts

314070	Screwdriver, hexagonal, small, ∅ 2.5 mm, with Groove	
313302	Screwdriver Stardrive, T8, cylindrical, with Groove, shaft ∅ 3.5 mm	
314041	Screwdriver Stardrive 3.5, T15, with Groove, length 200 mm	
314164	Screwdriver Stardrive 4.5/5.0, T25, with Groove, length 240 mm	
314270	Screwdriver, hexagonal, large, ∅ 3.5 mm, with Groove, length 245 mm	

313304	Screwdriver Shaft Stardrive, T8, cylindrical, with Groove, shaft ∅ 3.5 mm, for AO/ASIF Quick Coupling	
314030	Screwdriver Shaft, hexagonal, small, ∅ 2.5 mm	
314116	Screwdriver Shaft Stardrive 3.5, T15, self-holding, for AO/ASIF Quick Coupling	
314119	Screwdriver Shaft Stardrive 4.5/5.0, T25, self-holding, for AO/ASIF Quick Coupling	
314152	Screwdriver Shaft 3.5, hexagonal, self-holding	
314467	Screwdriver Shaft, Stardrive, SD8, self-holding	

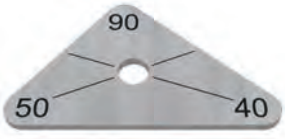
Bone Holding Forceps and Reduction Forceps

399091	Bone Holding Forceps, self-centering, soft lock, length 191 mm	
399121	Bone Holding Forceps, self-centering, soft lock, length 239 mm	
399098	Reduction Forceps, toothed, soft lock, length 194 mm	
399124	Reduction Forceps, toothed, soft lock, length 250 mm	

Torque Limiters

03110005	Handle for Torque Limiters 0.4/0.8/1.2 Nm	
397705	Handle for Torque Limiter Nos. 511.770 and 511.771	
511776	Torque Limiter, 0.8 Nm, with AO/ASIF Quick Coupling	
511770	Torque Limiter, 1.5 Nm, for Compact Air Drive and Power Drive	
511771	Torque Limiter, 4 Nm, for Compact Air Drive and Power Drive	

Positioning Plates

333060	Positioning Plate, triangular, length 45 mm, 90°/50°/40°	
333070	Positioning Plate, triangular, length 45 mm, 80°/70°/30°	
333080	Positioning Plate, triangular, length 45 mm, 100°/60°/20°	

Others

03108007	Instrument for Medialization	
313300	Combined Holding Sleeve for Cortex Screws Stardrive ∅ 2.4/2.7 mm, T8, for Screwdriver Shafts ∅ 3.5 mm	
313301	Holding Sleeve for LCP Screws Stardrive ∅ 2.4/2.7 mm (head LCP 2.4), SD8, for Screwdriver Shafts ∅ 3.5 mm	

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