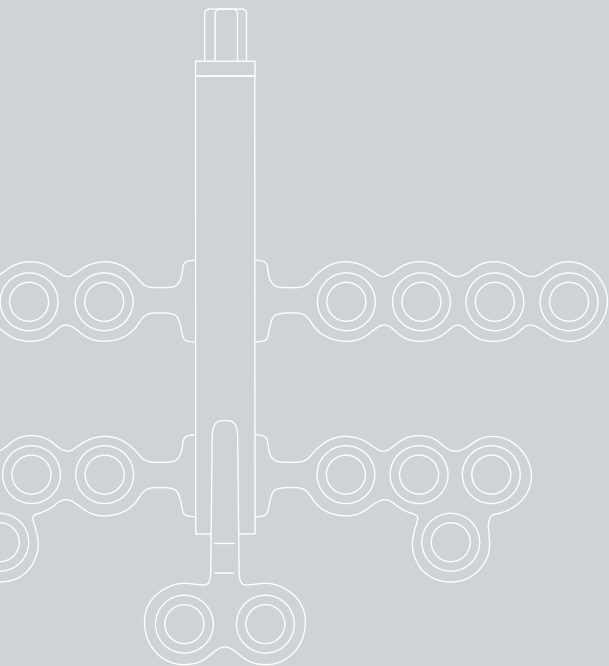





Distraction Devices Overview

Sophisticated Products in OMF Surgery





The lengthening of bones by gradual distraction has been executed systematically and described for the first time by the Russian surgeon Prof. Gavril Ilizarov (Ilizarov 1975, Ilizarov 1988). The principle is to stretch callus formed after a osteotomy at a rate of 1 mm per day. This stimulus activates the forces of spontaneous healing of the bone, so that continuously new callus is produced and the bone is lengthened.

The smaller the single distraction steps are, the stronger is the effect of triggering callus formation. Continuous stretching will bring an optimum stimulation. Besides the formation of new bone, the simultaneous stretching and augmentation of the surrounding soft tissue (histogenesis) is an important advantage of this method. Furthermore, the slow change allows a better adaptation of the soft tissue (muscles, former scar tissue) which is considered favourable as concerns the avoiding of recidivation.

Distraction in oral and cranio-maxillofacial surgery

Since the end of the eighties, the lengthening of bone with the help of distraction osteogenesis has been used in oral and cranio-maxillofacial surgery and has become an important option for the treatment of a certain number of anomalies.

These include mainly syndromatic diseases, like hemifacial microsomia, severe cleft cases, but also Crouzon or Apert syndrome. Besides this, the treatment of bone defects after trauma is often only possible by distraction of the respective bone structures. During the past years, consequent miniaturization of the distraction devices has made it possible to use distraction osteogenesis also for the rebuilding of the alveolar ridge in cases of mandibular atrophy.

KLS Martin Group is considered a world technology leader in designing and manufacturing clinically approved distraction devices providing the most complete product range for any of these indications. Scientific evidence of their use has been shown in numerous publications quoting said distractors as ideal tools for the surgeon's daily work and for the patient's benefit.

Advantages of the technique

Compared to the conventional methods of treatment, distraction offers the following advantages:

- No bone transplantation with the difficult resection of the bone graft.
- Minimal risk of infection because vital bone is distracted.
- Not only the bone but also the soft tissue is distracted, so that the new bone is permanently stabilized.
- The results of the distraction can be reproduced.
- Simple surgical procedure which does not essentially differ from standard osteosynthesis techniques used in OMF surgery.

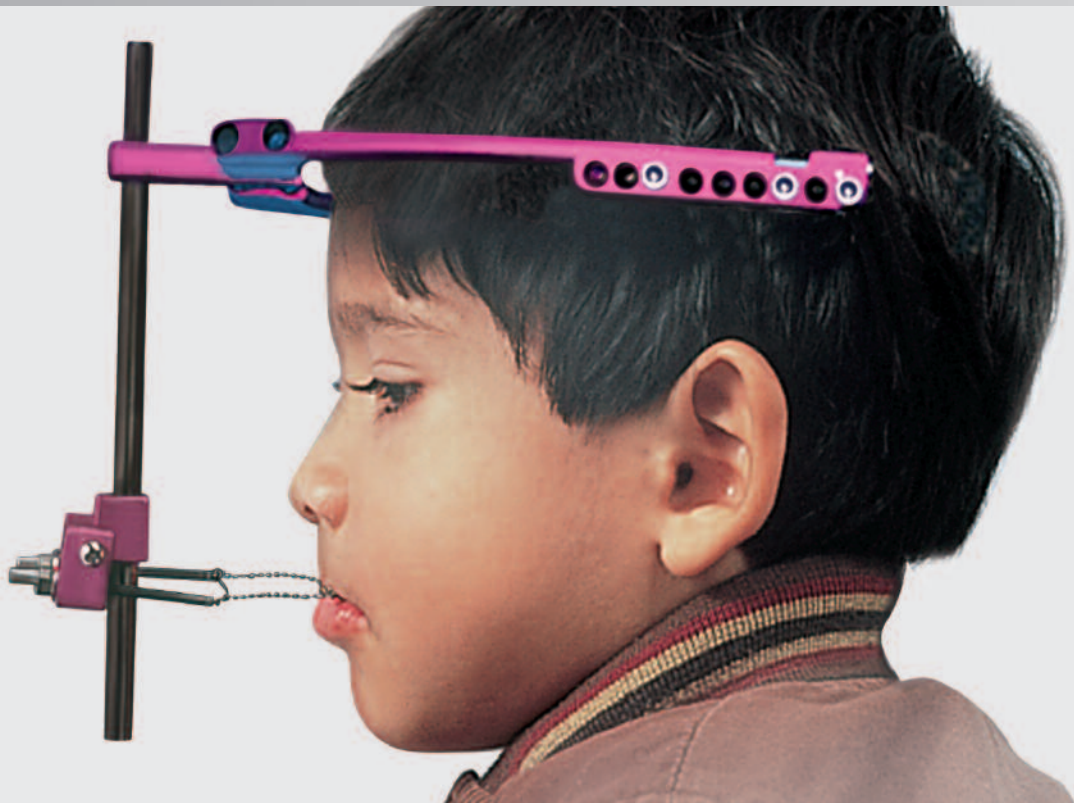
Summary

The current spectrum of distraction devices indicates the wide array of different indications of this technique in oral and craniomaxillofacial surgery.

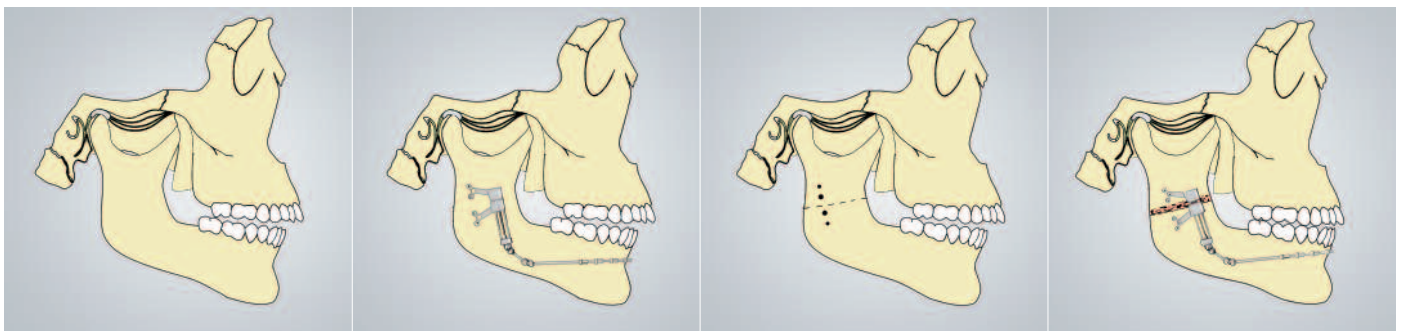
And yet the future years will bring many new devices such as internal multidirectional distractors as well as miniaturized systems that can be fixed by outpatient treatment. The functional and aesthetic advantages for the patient are obvious.

Indications/Contraindications

Details concerning indications/contraindications, fixation of the distractors depending on the individual situation etc. can be found in the instructions for use of the corresponding distractor.



Example of an operative approach:



The surgical procedure is divided into the following steps, independent of the selected distraction system:

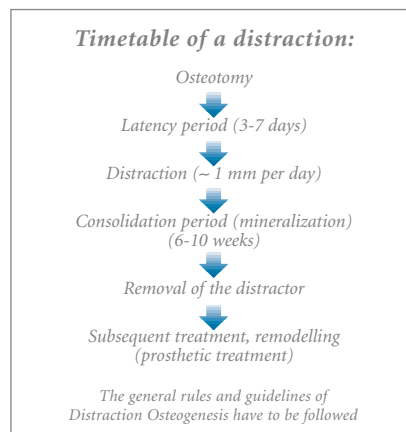
Exposing of the bone to be distracted, if possible by intraoral approach with vestibular incision.

Adaptation of the distractor to the bone and the required distraction vector and marking of the position by pre-drilling of at least two screw holes on each side of the osteotomy line.

Removal of the distractor and osteotomy. It is recommended to separate the bone completely.

Final fixation of the distractor with cortical screws and intraoperative test of the function of the distractor.

Closing of the wound and starting of the distraction after a latency period of 3 to 7 days.



Vertical Alveolar Distraction (Type Cologne)



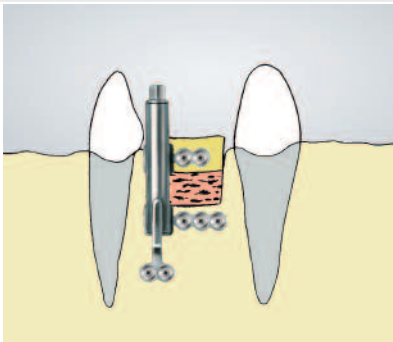
Micro TRACK
1:1 scale



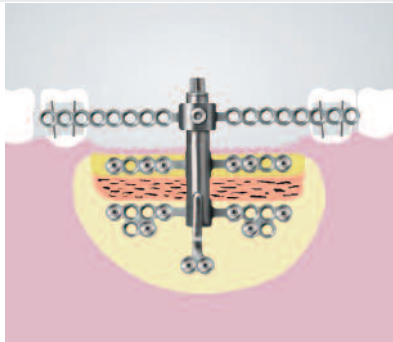
TRACK 1.0
1:1 scale



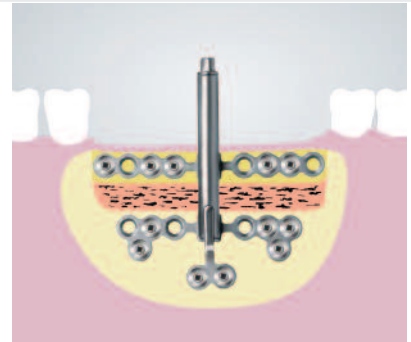
TRACK 1 Plus
5:1 scale



Micro TRACK



TRACK 1.0 with optional support plate 51-525-40-09



TRACK 1Plus

Micro TRACK

Distractors	Item Number
Distraction length 6 mm	51-523-06-09
Distraction length 9 mm	51-523-09-09
Distraction length 12 mm	51-523-12-09
Distraction length/turn 0.3 mm	

Recommended screws
1.0 x 4 mm to 1.0 x 6 mm
Emergency: 1.2 x 5 mm

Patient screwdrivers	
Straight	51-525-85-07
Combination straight and angled	51-525-90-07
Combination straight and angled for handle 25-402-99-07	51-525-91-04
Micro	51-525-95-07
Leaflet for details	90-174-02-04

TRACK 1.0

Distractors	Item Number
Distraction length 6 mm	51-525-06-05
Distraction length 9 mm	51-525-09-05
Distraction length 12 mm	51-525-12-05
Distraction length 15 mm	51-525-15-05
Distraction length/turn 0.3 mm	

Optional	
Support plate for Micro TRACK, TRACK 1.0, TRACK 1Plus	51-525-40-09

Recommended screws
1.0 x 4 mm to 1.0 x 6 mm
Emergency: 1.2 x 5 mm

Patient screwdrivers	
Straight	51-525-85-07
Combination straight and angled	51-525-90-07
Combination straight and angled for handle 25-402-99-07	51-525-91-04
Micro	51-525-95-07
Leaflet for details	90-174-02-04

TRACK 1Plus

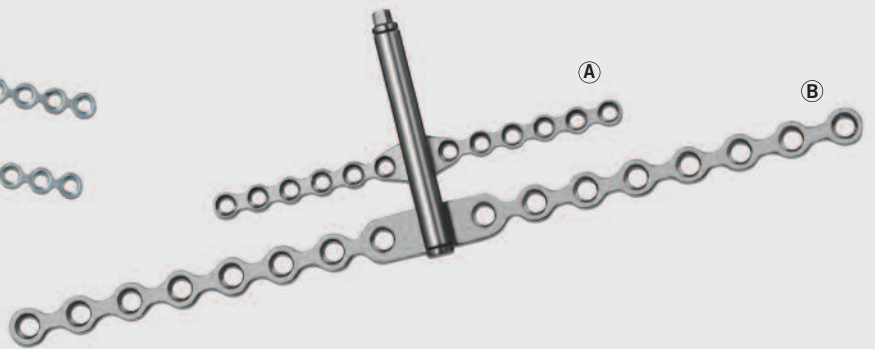
Distractors	Item Number
Distraction length 6 mm	51-524-06-09
Distraction length 9 mm	51-524-09-09
Distraction length 12 mm	51-524-12-09
Distraction length 15 mm	51-524-15-09
Distraction length/turn 0.3 mm	

Recommended screws
1.5 x 5 mm to 1.5 x 7 mm
Emergency: 1.8 x 5 mm
Drill-Free: 1.5 x 5 mm

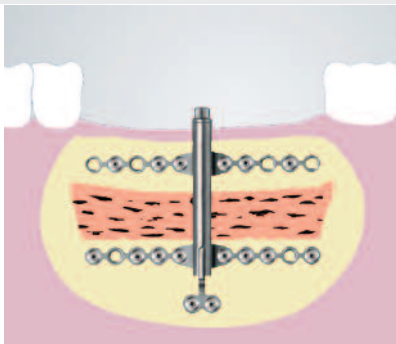
Patient screwdrivers	
Straight	51-525-85-07
Combination straight and angled	51-525-90-07
Combination straight and angled for handle 25-402-99-07	51-525-91-04
Micro	51-525-95-07
Leaflet for details	90-174-02-04



TRACK 1.5
1:1 scale



TRACK 2.0
1:1 scale



TRACK 1.5



TRACK 1.5

Distractors	Item Number
Distraction length 10 mm	51-520-10-09
Distraction length 15 mm	51-520-15-09
Distraction length/turn 0.5 mm	

Recommended screws
1.5 x 3.5 mm to 1.5 x 7 mm
Emergency: 1.8 x 5 mm
Drill-Free: 1.5 x 5 mm

Patient screwdrivers	
Straight	51-500-90-07
Angled	51-505-90-07
Combination straight and angled for handle 25-402-99-07	51-505-91-04
Micro	51-520-95-07
Leaflet for details	90-174-02-04

TRACK 2.0

Distractors	Item Number
Distraction length 10 mm	51-530-10-09
Distraction length 15 mm	51-530-15-09
Distraction length/turn 0.5 mm	

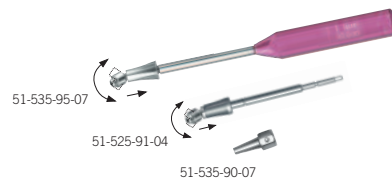
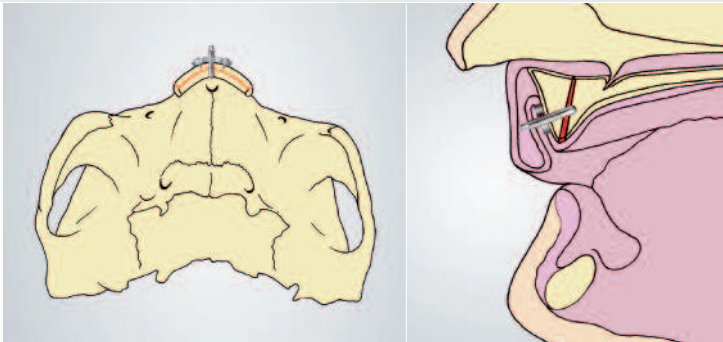
Recommended screws transport plate (A)
1.5 x 3.5 mm to 1.5 x 7 mm
Emergency: 1.8 x 5 mm
Drill-Free: 1.5 x 5 mm
Recommended screws base plate (B)
2.0 x 4 mm to 2.0 x 7 mm
Emergency: 2.3 x 5 mm
Drill-Free: 2.0 x 5 mm

Patient screwdrivers	
Straight	51-500-90-07
Angled	51-505-90-07
Combination straight and angled for handle 25-402-99-07	51-505-91-04
Micro	51-520-95-07
Leaflet for details	90-174-02-04

Horizontal Alveolar Distraction



Horizontal Alveolar Distractor
4:1 scale



Horizontal Alveolar Distractor

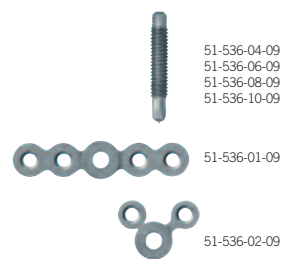
Distraction screws	Item Number
Distraction screw 4 mm	51-536-04-09
Distraction screw 6 mm	51-536-06-09
Distraction screw 8 mm	51-536-08-09
Distraction screw 10 mm	51-536-10-09

Plates	
Fixation plate, straight	51-536-01-09
Fixation plate, angled	51-536-02-09

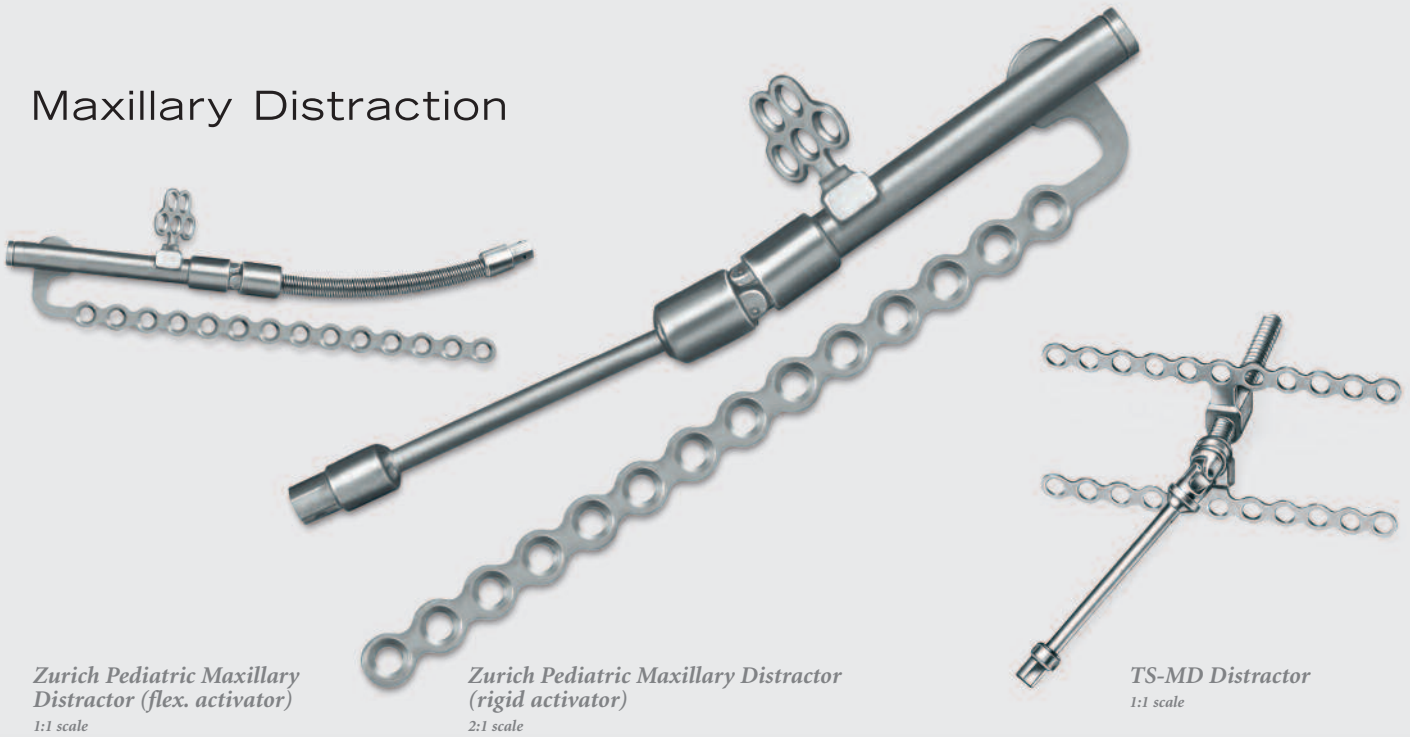
Distraction length/turn 0.5 mm

Recommended screws
1.5 x 4 mm or 1.5 x 5 mm
Emergency: 1.8 x 5 mm
Drill-Free: 1.5 x 5 mm

Patient screwdrivers	
Combination straight and angled	51-535-95-07
Comb. straight and angled f. handle 25-402-99-07	51-525-91-04
Micro	51-535-90-07
Leaflet for details	90-174-02-04



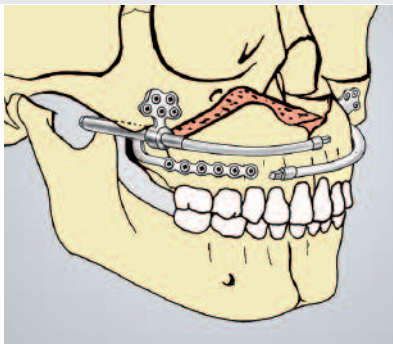
Maxillary Distraction



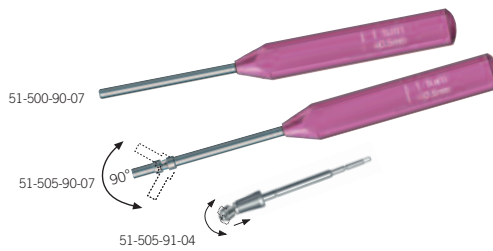
Zurich Pediatric Maxillary Distractor (flex. activator)
1:1 scale

Zurich Pediatric Maxillary Distractor (rigid activator)
2:1 scale

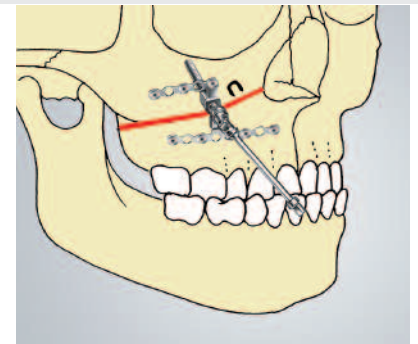
TS-MD Distractor
1:1 scale



Zurich Pediatric Maxillary Distractor (flex. activator)



51-500-90-07
51-505-90-07
51-505-91-04



TS-MD Distractor

Zurich Pediatric Maxillary Distractor (flexible activator)

Distractors	Item Number
Distraction length 15 mm, left	51-550-15-09
Distraction length 15 mm, right	51-551-15-09
Distraction length/turn 0.5 mm	

Recommended screws	
1.5 x 5 mm to 1.5 x 7 mm	
Emergency: 1.8 x 5 mm	
Drill-Free: 1.5 x 5 mm	

Patient screwdrivers	
Straight	51-500-90-07
Angled	51-505-90-07
Combination straight and angled for handle 25-402-99-07	51-505-91-04
Leaflet for details	90-756-02-04

Zurich Pediatric Maxillary Distractor (rigid activator)

Distractors	Item Number
Distraction length 15 mm, left	51-552-15-09
Distraction length 15 mm, right	51-553-15-09
Distraction length/turn 0.5 mm	

Recommended screws	
1.5 x 5 mm to 1.5 x 7 mm	
Emergency: 1.8 x 5 mm	
Drill-Free: 1.5 x 5 mm	

Patient screwdrivers	
Straight	51-500-90-07
Angled	51-505-90-07
Combination straight and angled for handle 25-402-99-07	51-505-91-04
Leaflet for details	90-756-02-04

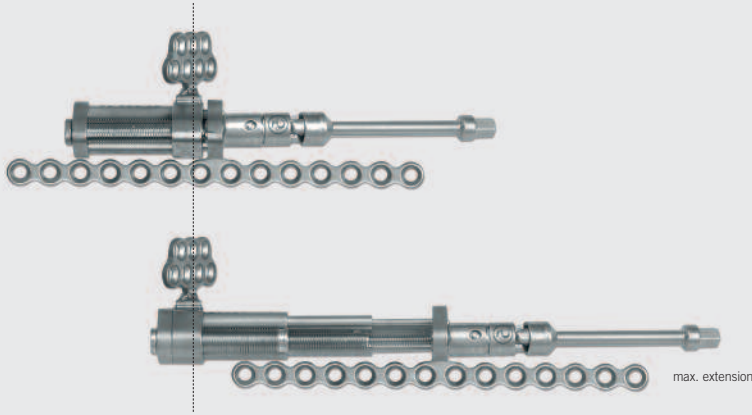
TS-MD Distractor

Distractors	Item Number
Distraction length 20 mm	51-540-20-09
Distraction length 25 mm	51-540-25-09
Distraction length 30 mm	51-540-30-09
Distraction length/turn 0.5 mm	

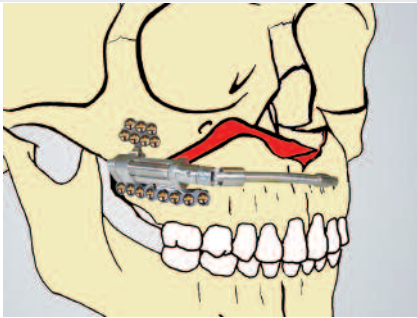
Recommended screws	
1.5 x 3.5 mm to 1.5 x 7 mm	
Emergency: 1.8 x 5 mm	
Drill-Free: 1.5 x 5 mm	

Patient screwdrivers	
Straight	51-500-90-07
Angled	51-505-90-07
Combination straight and angled for handle 25-402-99-07	51-505-91-04
Leaflet for details	90-895-02-04

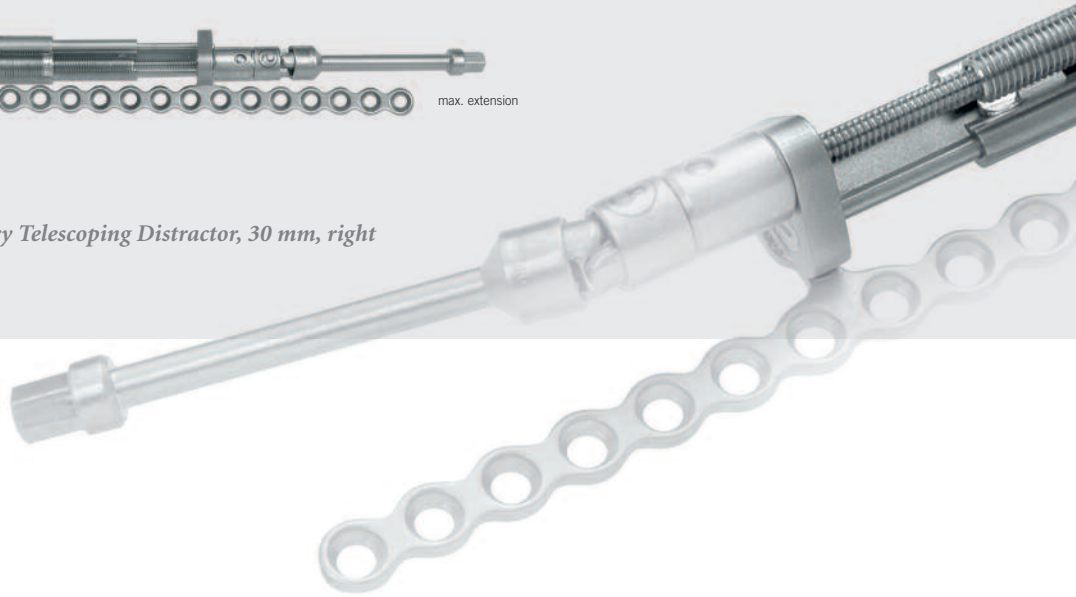
Maxillary Distraction



Maxillary Telescoping Distractor, 30 mm, right
1:1 scale



Maxillary Telescoping Distractor



Maxillary Telescoping Distractor

Distractors w/o activation arms	Item Number
20 mm, left	51-360-20-09
30 mm, left	51-360-30-09
20 mm, right	51-361-20-09
30 mm, right	51-361-30-09
Distraction length/turn 0.3 mm	

Recommended screws	
1.5 x 4 mm to 1.5 x 7 mm	
Emergency: 1.8 x 5 mm	
Drill-Free: 1.5 x 5 mm	

Patient screwdrivers	
Straight	51-555-85-07
Angled	51-555-95-07
Leaflet for details	90-175-02-04

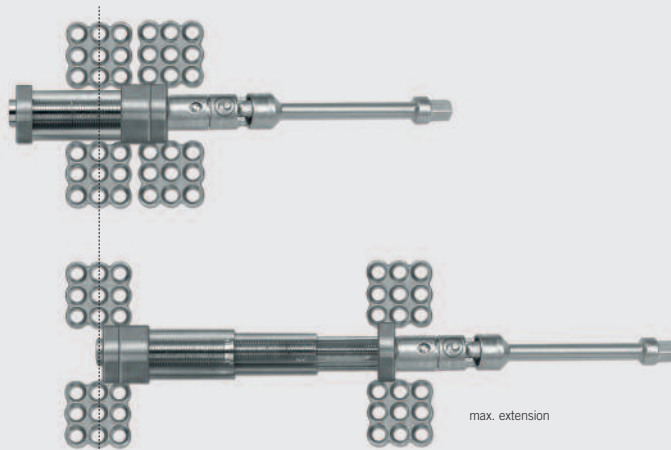
Completely Modular

Activation arms	Item Number
① Activation Arm, flexible incl. cardanic 30 mm	51-400-30-09
② Activation Arm, flexible incl. cardanic 40 mm	51-400-40-09
③ Activation Arm, flexible incl. cardanic 50 mm	51-400-50-09
④ Activation Arm, rigid incl. cardanic 25 mm	51-401-25-09
⑤ Activation Arm, rigid incl. cardanic 35 mm	51-401-35-09
⑥ Activation Arm, rigid incl. cardanic 45 mm	51-401-45-09
⑦ Activation Arm, rigid incl. cardanic 50 mm, clipable	51-401-50-09

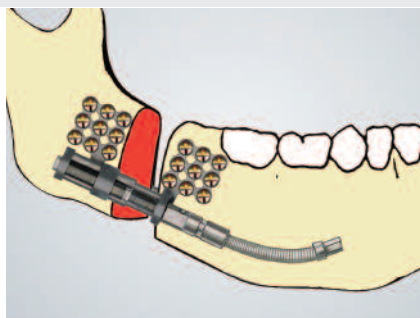


1:2 scale

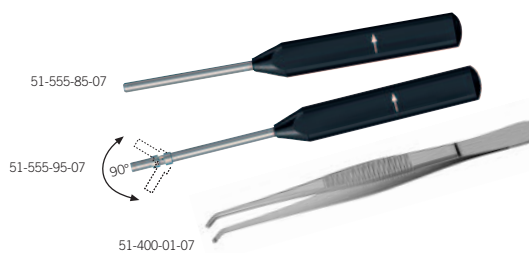
Mandibular Distraction



Mandibular Telescoping Distractor, 30 mm
1:1 scale



Mandibular Telescoping Distractor



Mandibular Telescoping Distractor

Distractors w/o activation arms	Item Number
20 mm	51-350-20-09
30 mm	51-350-30-09

Distraction length/turn 0.3 mm

Recommended screws

1.5 x 4 mm to 1.5 x 7 mm

Emergency: 1.8 x 5 mm

Drill-Free: 1.5 x 5 mm

Patient screwdrivers

Straight 51-555-85-07

Angled 51-555-95-07

Leaflet for details 90-175-02-04

Completely Modular

Activation arms	Item Number
-----------------	-------------

① Activation Arm, flexible incl. cardanic 30 mm 51-400-30-09

② Activation Arm, flexible incl. cardanic 40 mm 51-400-40-09

③ Activation Arm, flexible incl. cardanic 50 mm 51-400-50-09

④ Activation Arm, rigid incl. cardanic 25 mm 51-401-25-09

⑤ Activation Arm, rigid incl. cardanic 35 mm 51-401-35-09

⑥ Activation Arm, rigid incl. cardanic 45 mm 51-401-45-09

⑦ Activation Arm, rigid incl. cardanic 50 mm, clipable 51-401-50-09

⑧ Direct drive activator 51-401-90-09

⑨ Single cardanic extension for activation arm 51-401-91-09

⑩ Rigid extension 20 mm for activation arm 51-401-92-09

Trocar tip for activation arm 51-401-93-09



1:2 scale

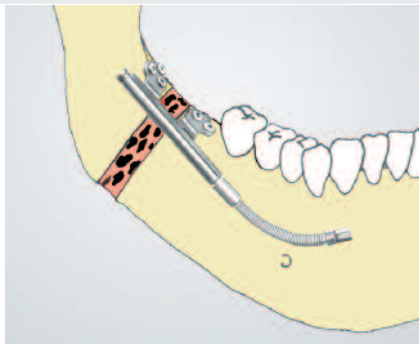
Zurich Mandibular Distraction



Zurich Pediatric Ramus Cloverleaf design (flex. activator)
1:1 scale



Zurich Pediatric Ramus Y-shaped design (flex. activator)
1:1 scale



Zurich Pediatric Ramus Cloverleaf design (flex. activator)

Zurich Pediatric Ramus Cloverleaf design (flexible activator)

Distractors	Item Number
15 mm, left	51-515-15-09
20 mm, left	51-515-20-09
25 mm, left	51-515-25-09
15 mm, right	51-516-15-09
20 mm, right	51-516-20-09
25 mm, right	51-516-25-09

Distraction length/turn 0.5 mm

Recommended screws

1.5 x 3.5 mm to 1.5 x 7 mm
Emergency: 1.8 x 5 mm
Drill-Free: 1.5 x 5 mm

Patient screwdrivers

Straight	51-500-90-07
Angled	51-505-90-07
Combination straight and angled for handle 25-402-99-07	51-505-91-04
Leaflet for details	90-758-02-04

Zurich Pediatric Ramus Y-shaped design (flexible activator)

Distractors	Item Number
15 mm, left	51-517-15-09
20 mm, left	51-517-20-09
25 mm, left	51-517-25-09
15 mm, right	51-518-15-09
20 mm, right	51-518-20-09
25 mm, right	51-518-25-09

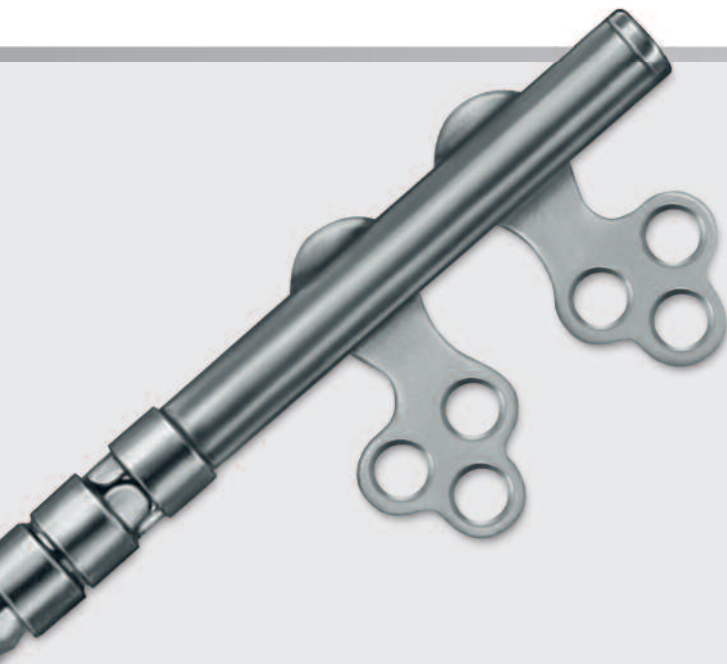
Distraction length/turn 0.5 mm

Recommended screws

1.5 x 3.5 mm to 1.5 x 7 mm
Emergency: 1.8 x 5 mm
Drill-Free: 1.5 x 5 mm

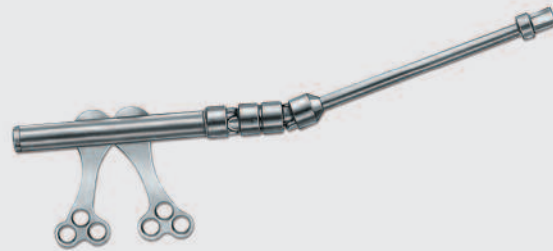
Patient screwdrivers

Straight	51-500-90-07
Angled	51-505-90-07
Combination straight and angled for handle 25-402-99-07	51-505-91-04
Leaflet for details	90-758-02-04



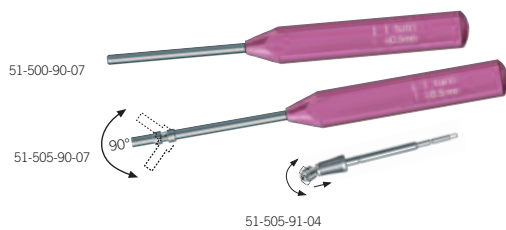
*Zurich Pediatric Ramus Cloverleaf Design
(rigid activator)*

3:1 scale



*Zurich Pediatric Ramus Y-shaped design
(rigid activator)*

1:1 scale



*Zurich Pediatric Ramus
Cloverleaf design (rigid activator)*

Distractors	Item Number
15 mm, left	51-511-15-09
20 mm, left	51-511-20-09
25 mm, left	51-511-25-09
15 mm, right	51-513-15-09
20 mm, right	51-513-20-09
25 mm, right	51-513-25-09

Distraction length/turn 0.5 mm

Recommended screws

1.5 x 3.5 mm to 1.5 x 7 mm

Emergency: 1.8 x 5 mm

Drill-Free: 1.5 x 5 mm

Patient screwdrivers

Straight 51-500-90-07

Angled 51-505-90-07

Combination straight and angled
for handle 25-402-99-07 51-505-91-04

Leaflet for details 90-758-02-04

*Zurich Pediatric Ramus
Y-shaped design (rigid activator)*

Distractors	Item Number
15 mm, left	51-514-15-09
20 mm, left	51-514-20-09
25 mm, left	51-514-25-09
15 mm, right	51-519-15-09
20 mm, right	51-519-20-09
25 mm, right	51-519-25-09

Distraction length/turn 0.5 mm

Recommended screws

1.5 x 3.5 mm to 1.5 x 7 mm

Emergency: 1.8 x 5 mm

Drill-Free: 1.5 x 5 mm

Patient screwdrivers

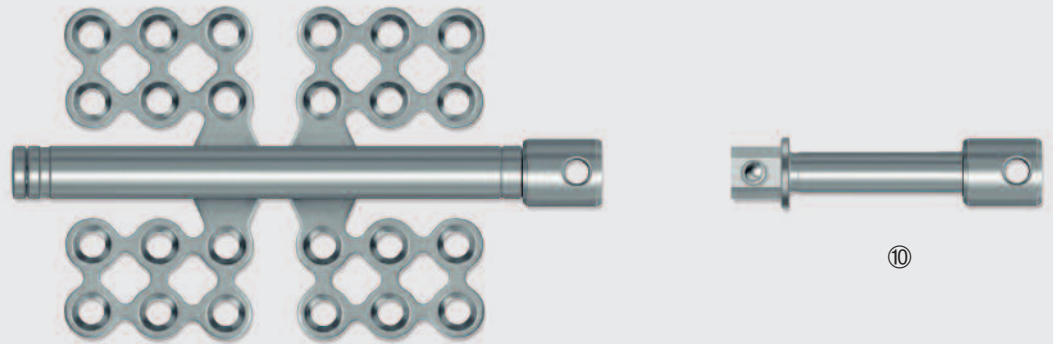
Straight 51-500-90-07

Angled 51-505-90-07

Combination straight and angled
for handle 25-402-99-07 51-505-91-04

Leaflet for details 90-758-02-04

Zurich II Distraction System



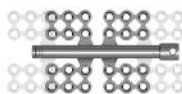
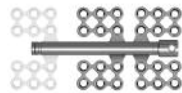
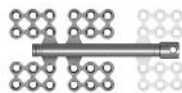
Example:
Activator length 61 mm
2:1 scale

Distractor, Mesh design, Middle-Driven

*Rigid extension 20 mm
for activation arm*

Zurich II distractor bodies

Distractors w/o activation arms	Item Number
End-driven (Mesh design)	
15 mm	51-416-15-09
20 mm	51-416-20-09
25 mm	51-416-25-09
30 mm	51-416-30-09
End-driven (Cloverleaf design)	
15 mm	51-418-15-09
20 mm	51-418-20-09
25 mm	51-418-25-09
30 mm	51-418-30-09
Front-driven (Mesh design)	
15 mm	51-419-15-09
20 mm	51-419-20-09
25 mm	51-419-25-09
30 mm	51-419-30-09
Front-driven (Cloverleaf design)	
15 mm	51-414-15-09
20 mm	51-414-20-09
25 mm	51-414-25-09
30 mm	51-414-30-09
Middle-driven (Mesh design)	
15 mm	51-415-15-09
20 mm	51-415-20-09
25 mm	51-415-25-09
30 mm	51-415-30-09
Middle-driven (Cloverleaf design)	
15 mm	51-417-15-09
20 mm	51-417-20-09
25 mm	51-417-25-09
30 mm	51-417-30-09



Instruments	Item Number
Patient screwdriver	51-500-90-07
Disconnection forceps	51-400-01-07
Plate cutter	51-400-02-07
Holding forceps for distractors	51-400-03-07
Activation measuring device	51-400-04-07
Leaflet for details	90-175-02-04

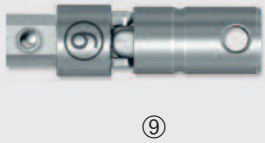
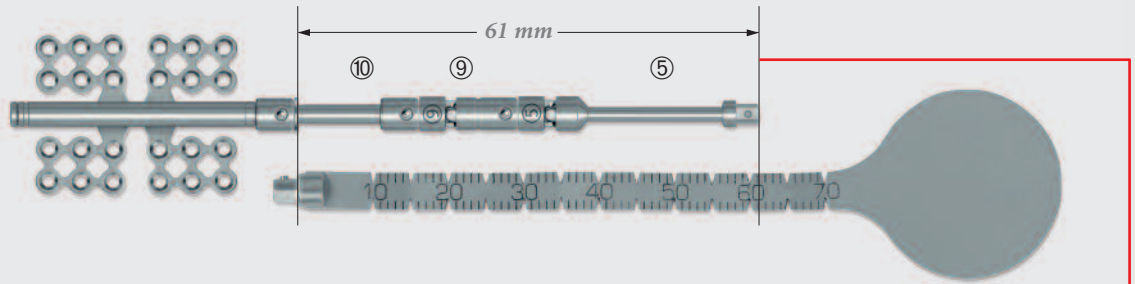
Distraction length/turn 0.5 mm

Recommended screws
1.5 x 4 mm to 1.5 x 7 mm
Emergency: 1.8 x 5 mm
Drill-Free: 1.5 x 5 mm

Please have a look at our brochure "Zurich II Modular Distraction Concept" ! This brochure contains additional models with anti-relapse ratchet and special Micro Zurich devices for babies and infants.

1:2 scale

Example:
Activator length
61 mm
1:1 scale



Single cardanic extension
for activation arm

Activation arm, rigid
incl. cardanic 35 mm



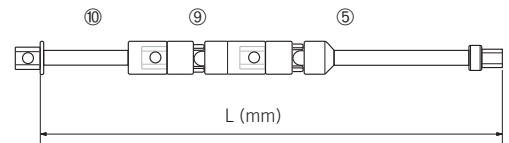
Completely Modular

Activation arms	Item Number
① Activation Arm, flexible incl. cardanic 30 mm	51-400-30-09
② Activation Arm, flexible incl. cardanic 40 mm	51-400-40-09
③ Activation Arm, flexible incl. cardanic 50 mm	51-400-50-09
④ Activation Arm, rigid incl. cardanic 25 mm	51-401-25-09
⑤ Activation Arm, rigid incl. cardanic 35 mm	51-401-35-09
⑥ Activation Arm, rigid incl. cardanic 45 mm	51-401-45-09
⑦ Activation Arm, rigid incl. cardanic 50 mm, clipable	51-401-50-09
Additional	
⑧ Direct drive activator	51-401-90-09
⑨ Single cardanic extension for activation arm	51-401-91-09
⑩ Rigid extension 20 mm for activation arm	51-401-92-09
Trocar tip for activation arm	51-401-93-09



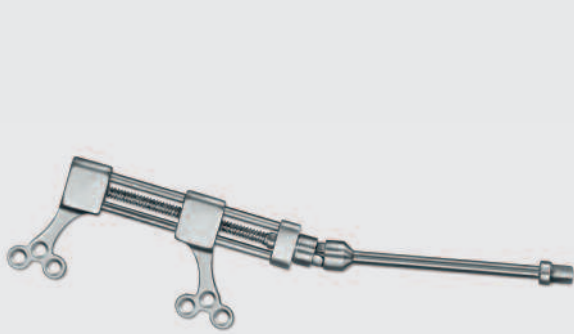
1:2 scale

Possible Combinations

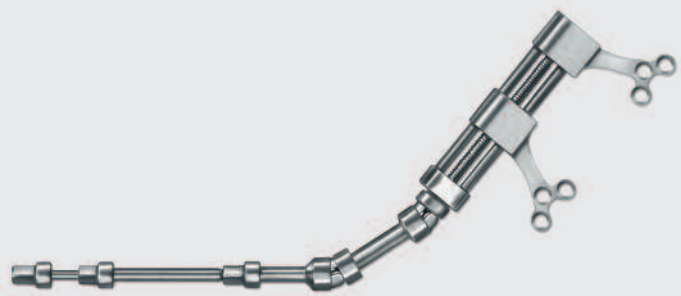


L (mm)	System	L (mm)	System
16	⑧ + ⑨	49	⑤ + ⑩
20	⑧ + ⑩	51	④ + ⑨ + ⑩
22	④	54	② + ⑩
27	①	56	① + ⑨ + ⑩
32	⑤	55	⑥ + ⑨
33	⑧ + ⑨ + ⑩	59	③ + ⑨
35	④ + ⑨	59	⑥ + ⑩
37	②	60	⑦ + ⑨
39	① + ⑨	61	⑤ + ⑨ + ⑩
39	④ + ⑩	64	③ + ⑩
42	⑥	64	⑦ + ⑩
44	① + ⑩	66	② + ⑨ + ⑩
45	⑤ + ⑨	71	⑥ + ⑨ + ⑩
47	⑦	76	③ + ⑨ + ⑩
47	③	77	⑦ + ⑨ + ⑩
49	② + ⑨		

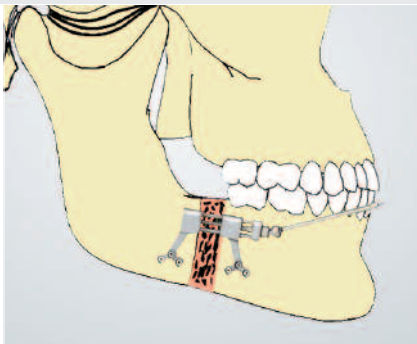
Uni-Directional Mandibular Distraction



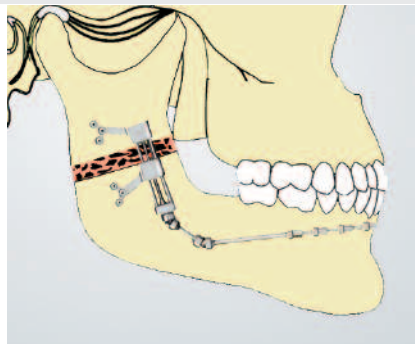
Horizontal Distractor
1:1 scale



Ramus Distractor
1:1 scale



Horizontal Distractor



Ramus Distractor



Horizontal Distractor

Distractors	Item Number
10 mm	51-500-10-05
15 mm	51-500-15-05
20 mm	51-500-20-05
Distraction length/turn 0.5 mm	

Recommended screws	
1.5 x 3.5 mm to 1.5 x 7 mm	
Emergency: 1.8 x 5 mm	
Drill-Free: 1.5 x 5 mm	

Patient screwdrivers	
Straight	51-500-90-07
Angled	51-505-90-07
Comb. straight and angled for handle 25-402-99-07	51-505-91-04
Leaflet for details	90-755-02-04

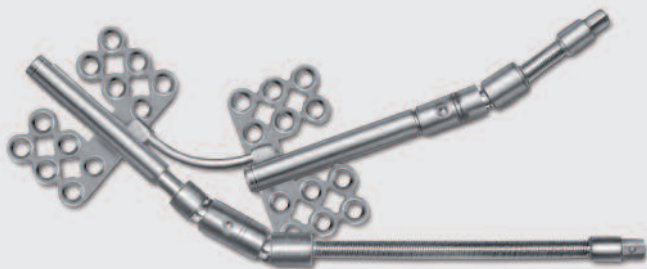
Ramus Distractor

Distractors	Item Number
15 mm	51-510-15-09
20 mm	51-510-20-09
25 mm	51-510-25-09
Distraction length/turn 0.5 mm	

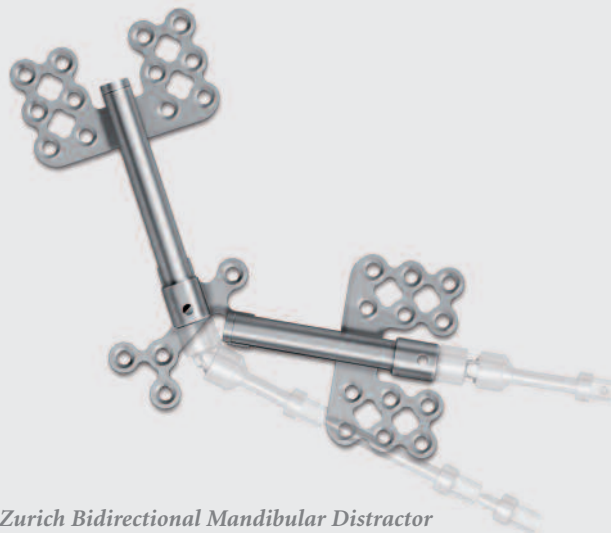
Recommended screws	
1.5 x 3.5 mm to 1.5 x 7 mm	
Emergency: 1.8 x 5 mm	
Drill-Free: 1.5 x 5 mm	

Patient screwdrivers	
Straight	51-500-90-07
Angled	51-505-90-07
Comb. straight and angled for handle 25-402-99-07	51-505-91-04
Leaflet for details	90-755-02-04

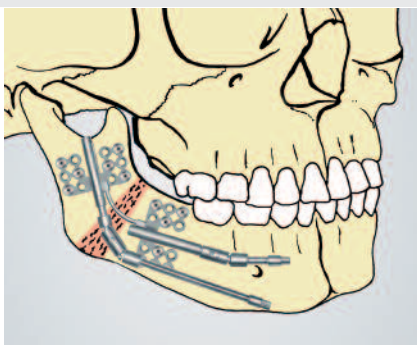
Bi-Directional Mandibular Distraction



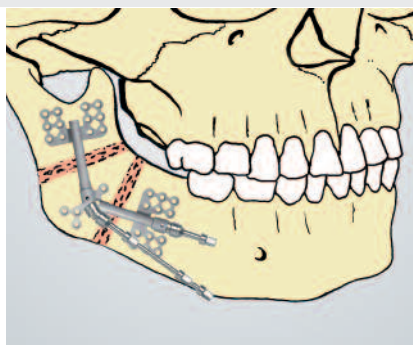
Wood Zurich Intraoral Distractor
with activation arms
1:1 scale



Zurich Bidirectional Mandibular Distractor
w/o activation arms
1:1 scale



Wood Zurich Intraoral Distractor



Distractor fitted to the mandible, osteotomies marked;

Wood Zurich Intraoral Distractor

Distractors incl. activation arms	Item Number
10 x 15 mm, left	51-300-15-09
20 x 20 mm, left	51-300-20-09
10 x 15 mm, right	51-301-15-09
20 x 20 mm, right	51-301-20-09
Distraction length/turn 0.5 mm	

Recommended screws
1.5 x 3.5 mm to 1.5 x 7 mm
Emergency: 1.8 x 5 mm
Drill-Free: 1.5 x 5 mm

Patient screwdrivers	
Straight	51-500-90-07
Angled	51-505-90-07
Comb. straight and angled for handle 25-402-99-07	51-505-91-04
Leaflet for details	90-175-02-04

Zurich Bidirectional Mandibular Distractor

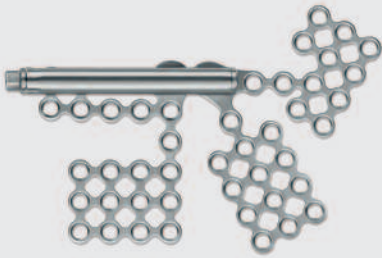
Distractors w/o activation arms	Item Number
10 x 15 mm, left	51-310-15-09
15 x 20 mm, left	51-310-20-09
10 x 15 mm, right	51-311-15-09
15 x 20 mm, right	51-311-20-09
Distraction length/turn 0.5 mm	

Recommended screws
1.5 x 3.5 mm to 1.5 x 7 mm
Emergency: 1.8 x 5 mm
Drill-Free: 1.5 x 5 mm

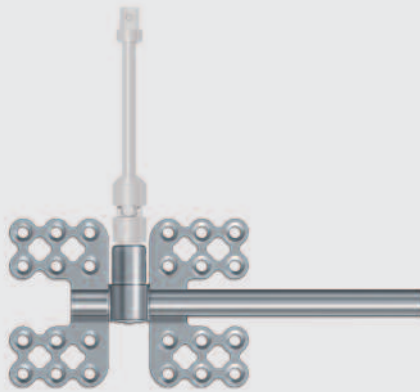
Patient screwdrivers	
Straight	51-500-90-07
Angled	51-505-90-07
Comb. straight and angled for handle 25-402-99-07	51-505-91-04
Leaflet for details	90-175-02-04

Activation arms see page 15

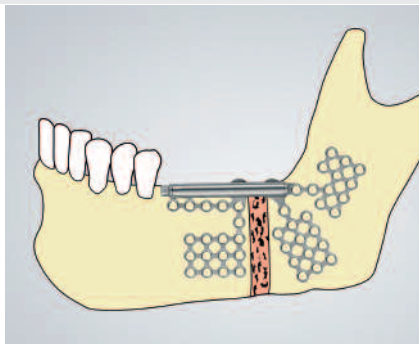
Mandibular Distraction



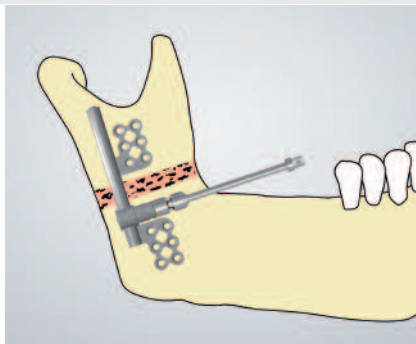
Moses-Stucki Distractor
1:1 scale



Right Angle Driven (RAD)
w/o activation arm
1:1 scale



Moses-Stucki Distractor



Intraoral fixation of a distractor with 90° activation



Moses-Stucki Distractor

Distractors	Item Number
15 mm, left	51-435-15-09
20 mm, left	51-435-20-09
15 mm, right	51-436-15-09
20 mm, right	51-436-20-09
Distraction length/turn 0.5 mm	

Recommended screws
1.5 x 3.5 mm to 1.5 x 7 mm
Emergency: 1.8 x 5 mm
Drill-Free: 1.5 x 5 mm

Patient screwdrivers	
Straight	51-500-90-07
Leaflet for details	90-175-02-04

Right Angle Driven (RAD)

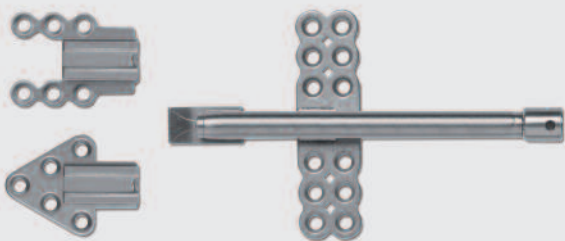
Distractors w/o activation arms	Item Number
20 mm, left	51-612-20-09
25 mm, left	51-612-25-09
30 mm, left	51-612-30-09
20 mm, right	51-613-20-09
25 mm, right	51-613-25-09
30 mm, right	51-613-30-09
Distraction length/turn 0.1 mm	

Recommended screws
1.5 x 3.5 mm to 1.5 x 7 mm
Emergency: 1.8 x 5 mm
Drill-Free: 1.5 x 5 mm

Patient screwdrivers	
Straight	51-560-90-07
Leaflet for details	90-175-02-04

Activation arms see page 15

Transport Distractor



51-420-20-09



51-422-12-09

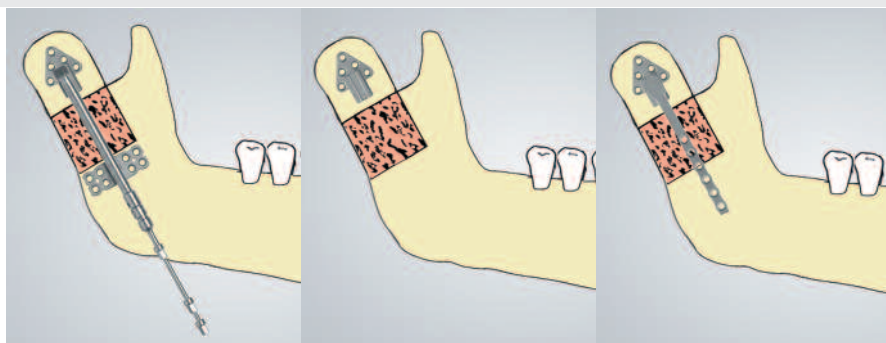
Ramus Transport Distractor

1:1 scale

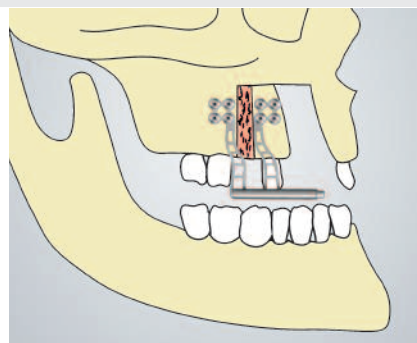


Liou Cleft Distractor

1:1 scale



Ramus Transport Distractors



Liou Cleft Distractor

Ramus Transport Distractors

Front-driven distractors w/o activation arms	Item Number
20 mm	51-420-20-09
25 mm	51-420-25-09
30 mm	51-420-30-09

Activation arms see page 15

End-driven distractors w/o activation arms	Item Number
20 mm	51-421-20-09
25 mm	51-421-25-09
30 mm	51-421-30-09

Distraction length/turn 0.5 mm

To order separately

Consolidation plate	51-422-12-09
---------------------	--------------

Recommended screws

1.5 x 3.5 mm to 1.5 x 7 mm
Emergency: 1.8 x 5 mm
Drill-Free: 1.5 x 5 mm

Patient screwdrivers

Straight	51-500-90-07
Leaflet for details	90-175-02-04

Liou Cleft Distractor

Distractors	Item Number
15 mm, left	51-650-15-09
20 mm, left	51-650-20-09
15 mm, right	51-651-15-09
20 mm, right	51-651-20-09

Distraction length/turn 0.3 mm

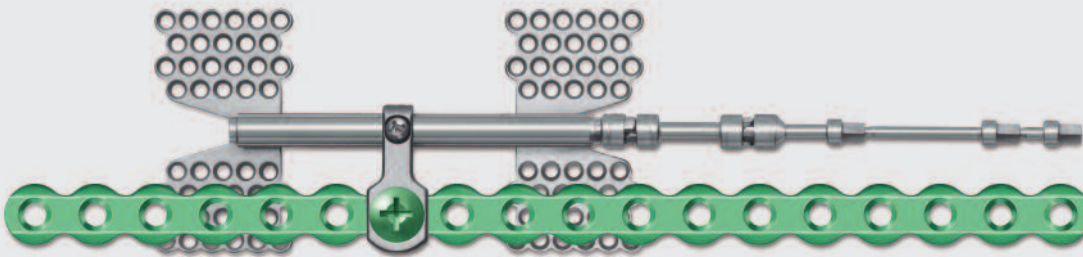
Recommended screws

1.5 x 4 mm or 1.5 x 5 mm
Emergency: 1.8 x 5 mm
Drill-Free: 1.5 x 5 mm

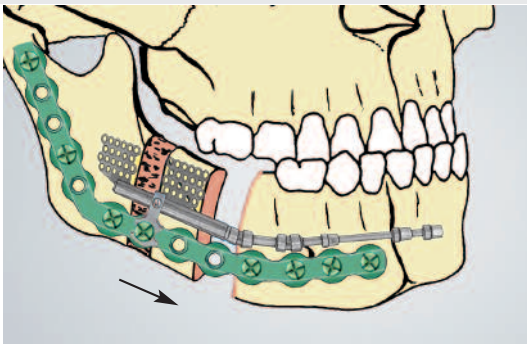
Patient screwdrivers

Straight	51-525-85-07
Combination straight and angled	51-525-90-07
Comb. straight and angled for handle 25-402-99-07	51-525-91-04

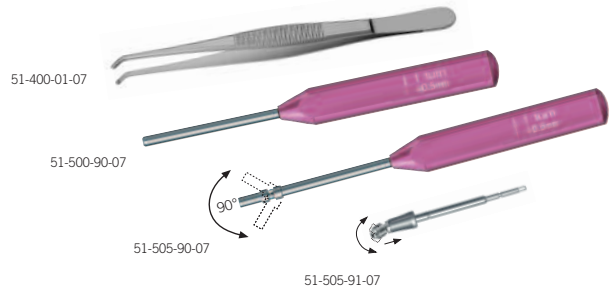
ThreadLock Transport



ThreadLock Transport Distractor
fixed on a ThreadLock TS reconstruction plate (2.7 mm)
1:1 scale



ThreadLock Transport Distractor



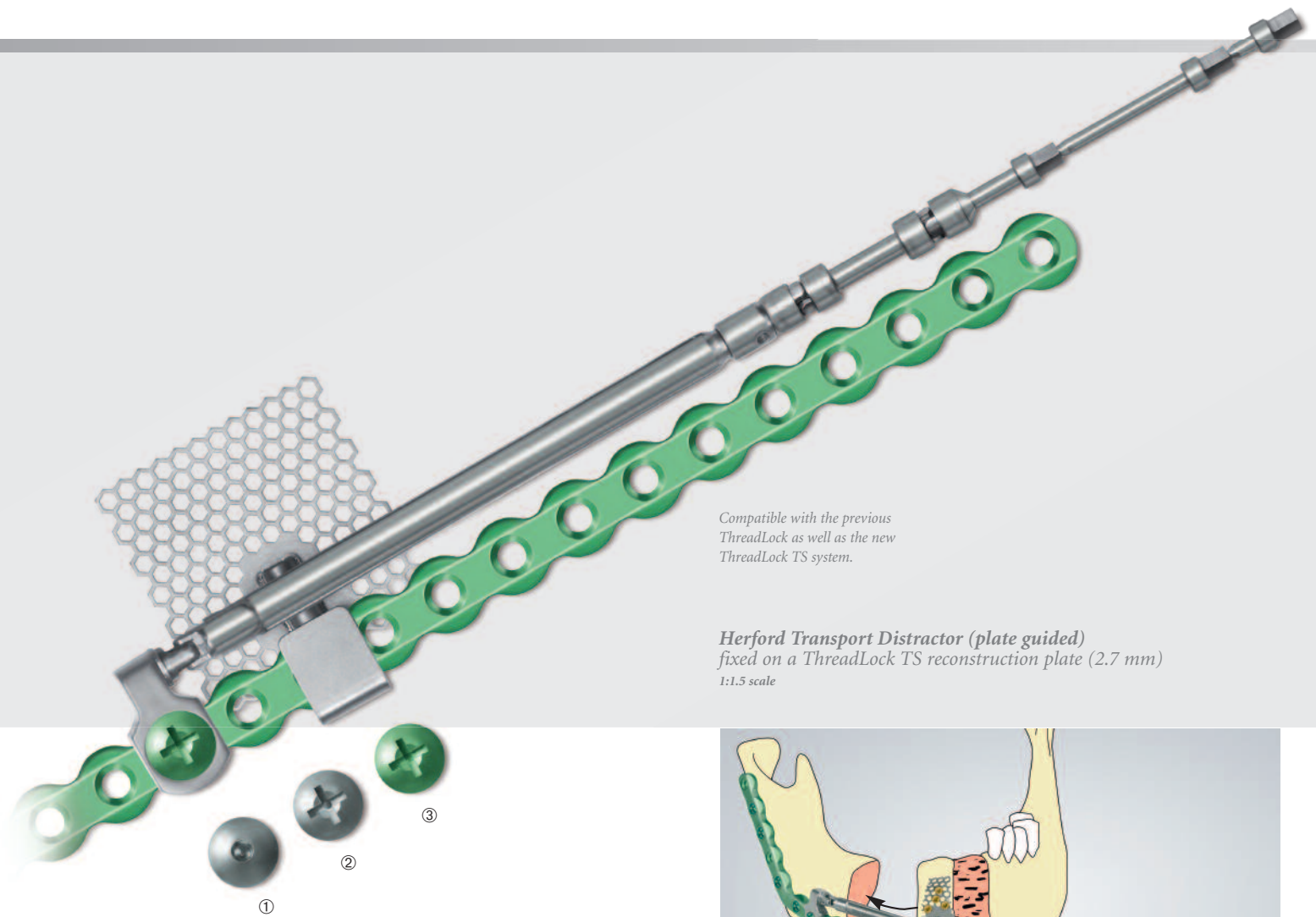
ThreadLock Transport Distractor

Distractors	Item Number
30 mm	51-700-30-09 *
40 mm	51-700-40-09 *
50 mm	51-700-50-09 *
Distraction length/turn 0.5 mm	

Recommended screws	
1.5 x 4 mm to 1.5 x 7 mm	
Emergency:	1.8 x 5 mm
Drill-Free:	1.5 x 5 mm

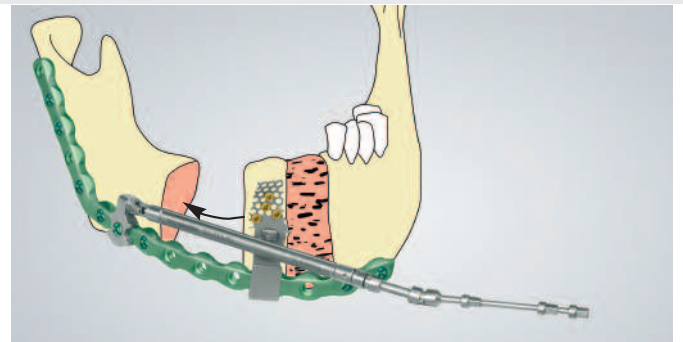
Patient screwdrivers	
Straight	51-500-90-07
Angled	51-505-90-07
Comb. straight and angled f. handle	25-402-99-07 / 51-505-91-04
Leaflet for details	90-124-02-04

* including	
1x distractor incl. activation arms and plate adaption	
①	1x Centre Drive® fixing screw 2.7 x 6 mm for ThreadLock recon plates (2.7 mm)
②	1x Cross Drive fixing screw 2.7 x 6 mm for ThreadLock recon plates (2.7 mm)
③	1x Cross Drive fixing screw 2.7 x 6 mm for ThreadLock TS recon plates (2.7 mm)



Compatible with the previous ThreadLock as well as the new ThreadLock TS system.

Herford Transport Distractor (plate guided)
fixed on a ThreadLock TS reconstruction plate (2.7 mm)
1:1.5 scale



Herford Transport Distractor (plate guided)

Herford Transport Distractor (plate guided)

Distractors	Item Number
30 mm, left	51-710-30-09 *
40 mm, left	51-710-40-09 *
50 mm, left	51-710-50-09 *
60 mm, left	51-710-60-09 *
30 mm, right	51-711-30-09 *
40 mm, right	51-711-40-09 *
50 mm, right	51-711-50-09 *
60 mm, right	51-711-60-09 *
Distraction length/turn 0.5 mm	

Recommended screws

1.5 x 4 mm to 1.5 x 7 mm
Emergency: 1.8 x 5 mm
Drill-Free: 1.5 x 5 mm

Patient screwdrivers

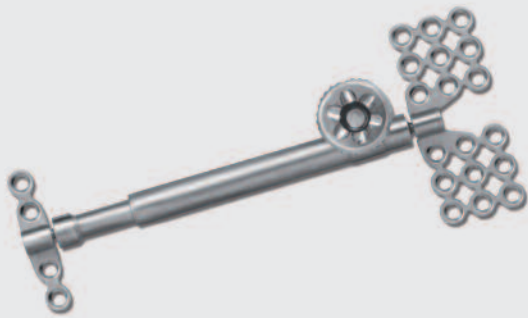
Straight	51-500-90-07
Angled	51-505-90-07
Comb. straight and angled f. handle 25-402-99-07	51-505-91-04
Leaflet for details	90-124-02-04

* including

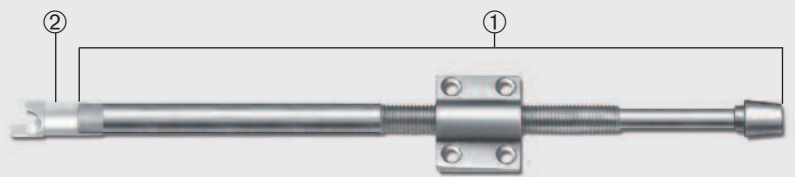
1x distractor incl. activation arms and plate adaption
① 1x Centre Drive® fixing screw 2.7 x 6 mm for ThreadLock recon plates (2.7 mm)
② 1x Cross Drive fixing screw 2.7 x 6 mm for ThreadLock recon plates (2.7 mm)
③ 1x Cross Drive fixing screw 2.7 x 6 mm for ThreadLock TS recon plates (2.7 mm)

For additional product information on „ThreadLock TS“ please refer to page 132 to 136 in our Level One Fixation product catalog.

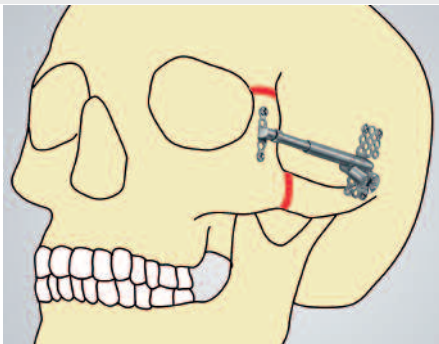
Le Fort III and Monobloc



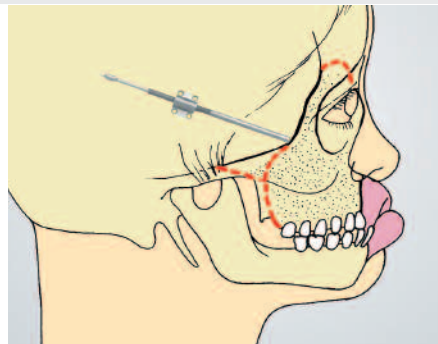
Riediger Distractor
1:1 scale



Molina Orbital Malar Distractor
1:2 scale



Riediger Distractor



Molina Orbital Malar Distractor

Riediger Distractor

Distractors	Item Number
15 mm, left	51-560-15-09
20 mm, left	51-560-20-09
15 mm, right	51-561-15-09
20 mm, right	51-561-20-09
Distraction length/turn 0.1 mm	

to order separately	
Soft tissue protection sleeve, 6 mm	51-562-06-09
Soft tissue protection sleeve, 9 mm	51-562-09-09
Soft tissue protection sleeve, 12 mm	51-562-12-09

Recommended screws	
1.5 x 3.5 mm to 1.5 x 7 mm	
Emergency: 1.8 x 5 mm	
Drill-Free: 1.5 x 5 mm	

Patient screwdriver	
Straight	51-560-90-07
Leaflet for details	90-123-02-04



Soft tissue protection sleeve

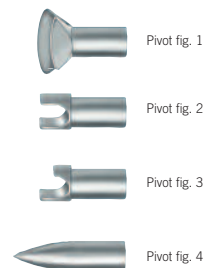
Molina Orbital Malar Distractor

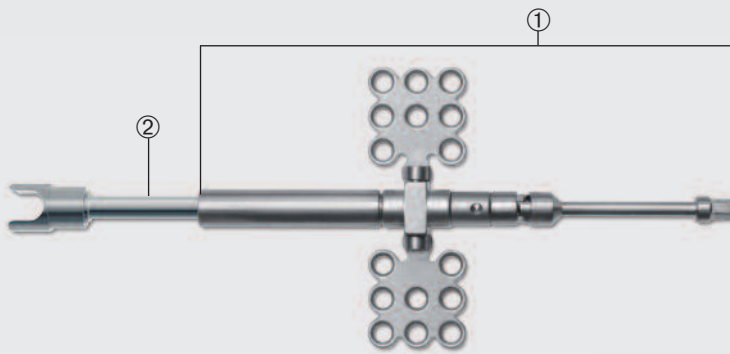
① Distractor	Item Number
35 mm	51-605-25-09
Distraction length/turn 0.5 mm	

② to order separately	
Pivot fig. 1	51-605-01-09
Pivot fig. 2	51-605-02-09
Pivot fig. 3	51-605-03-09
Pivot fig. 4	51-605-04-09

Recommended screws	
1.5 x 5 mm and 1.5 x 7 mm	

Patient screwdriver	
Straight	51-600-90-07
Leaflet for details	90-777-02-04



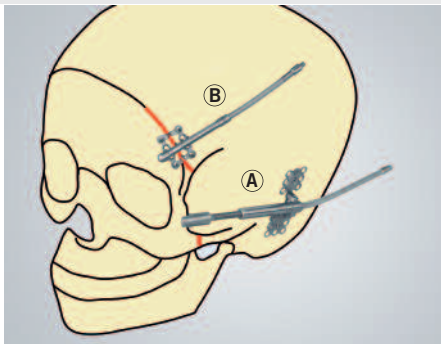


New!
Now with
removable
activator!



Marchac Temporal Distractor
1:1 scale

Arnaud Cranio-orbital Distractor
1:1 scale



Marchac Temp. Distractor
Arnaud Cranio-orbital Distractor

**Marchac
Temporal Distractor** (A)

① Distractors incl. activation arm	Item Number
25 mm, for babies	51-620-25-09
35 mm, for children and adults	51-620-35-09

② to order separately	
Pin, 40 mm	51-623-40-09
Pin, 50 mm	51-623-50-09
Pin, 60 mm	51-623-60-09
Pin, 70 mm	51-623-70-09
Distraction length/turn 0.5 mm	

Recommended screws
1.5 x 3.5 mm to 1.5 x 7 mm
Emergency: 1.8 x 5 mm
Drill-Free: 1.5 x 5 mm

Patient screwdrivers	
Straight	51-500-90-07
Combination straight and angled for handle 25-402-99-07	51-505-91-04
Leaflet for details	90-166-02-04



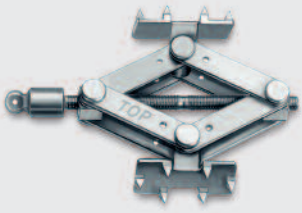
**Arnaud
Cranio-orbital Distractor** (B)

Distractor	Item Number
20 mm	51-630-20-09
Distraction length/turn 0.5 mm	

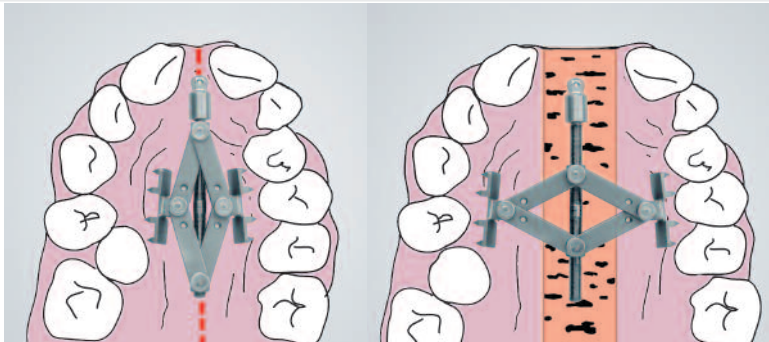
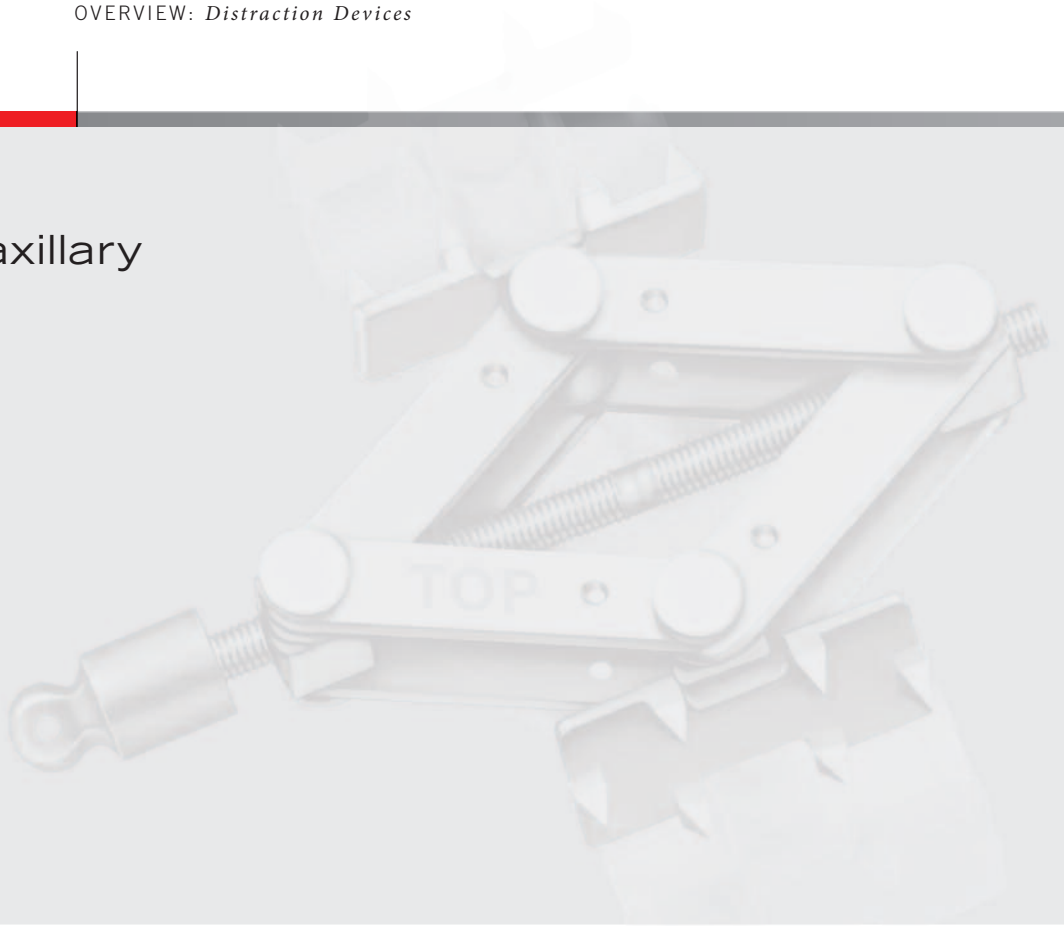
Recommended screws
1.5 x 3.5 mm to 1.5 x 7 mm
Emergency: 1.8 x 5 mm
Drill-Free: 1.5 x 5 mm

Patient screwdrivers	
Straight	51-525-85-07
Combination straight and angled for handle 25-402-99-07	51-525-91-04
Leaflet for details	90-166-02-04

Transversal Maxillary Distraction

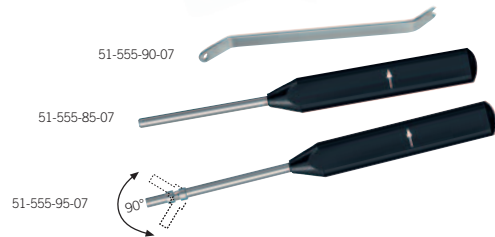


Rotterdam Palatal Distractor
1:1 scale



Rotterdam Palatal Distractor, start position

During distraction period



Rotterdam Palatal Distractor

Distractors	Item Number
9 mm initial width (19 mm distraction length)	51-555-09-09
13 mm initial width (19 mm distraction length)	51-555-13-09

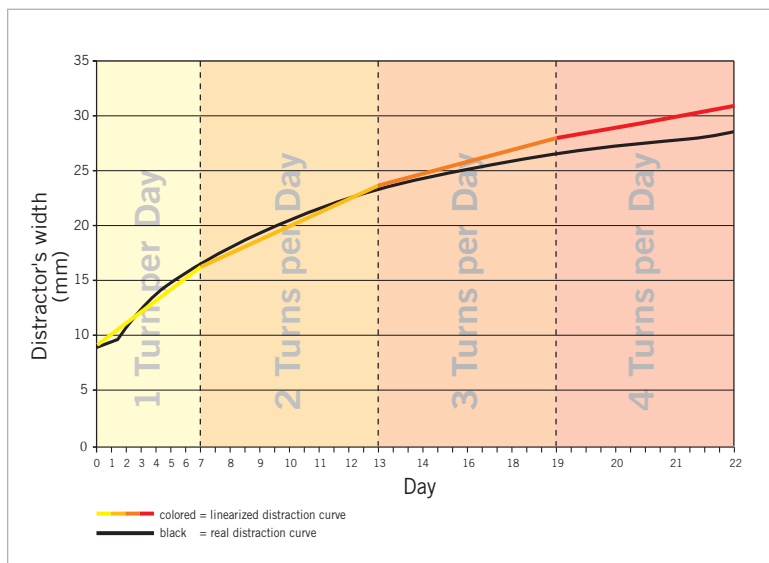
Distraction length/turn see distraction diagram

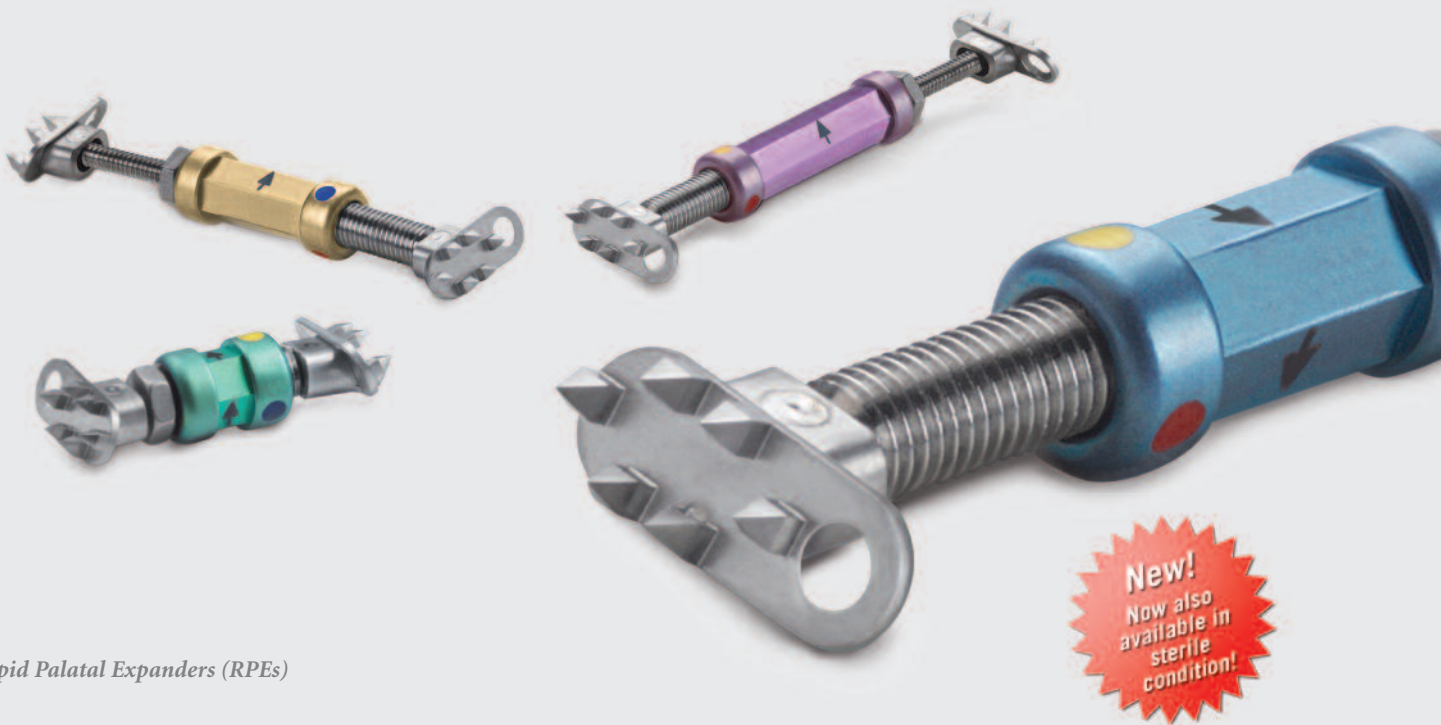
Screws are not required!

Patient screwdrivers

Hockey stick-like	51-555-90-07
Straight	51-555-85-07
Angled	51-555-95-07
Leaflet for details	90-239-02-04

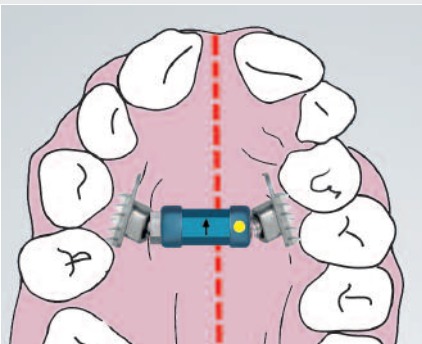
Distraction Diagram





Rapid Palatal Expanders (RPEs)

New!
Now also available in sterile condition!



RPE Distractor



51-565-90-07

2 Cross Drive Drill-Free screws
2.0 x 7 mm

Additionally available:
Flexible activating wrench
51-565-95-07

Rapid Palatal Expander (RPE)

Distractors	Item Number	sterile ^R
① 9 mm distraction length	51-565-09-09*	51-565-09-71**
② 18 mm distraction length	51-565-18-09*	51-565-18-71**
③ 27 mm distraction length	51-565-27-09*	51-565-27-71**
④ 36 mm distraction length	51-565-36-09*	51-565-36-71**

Recommended distraction length
one color code = 0.33 mm/day
(one complete turn = 1.0 mm)

Measuring Templates

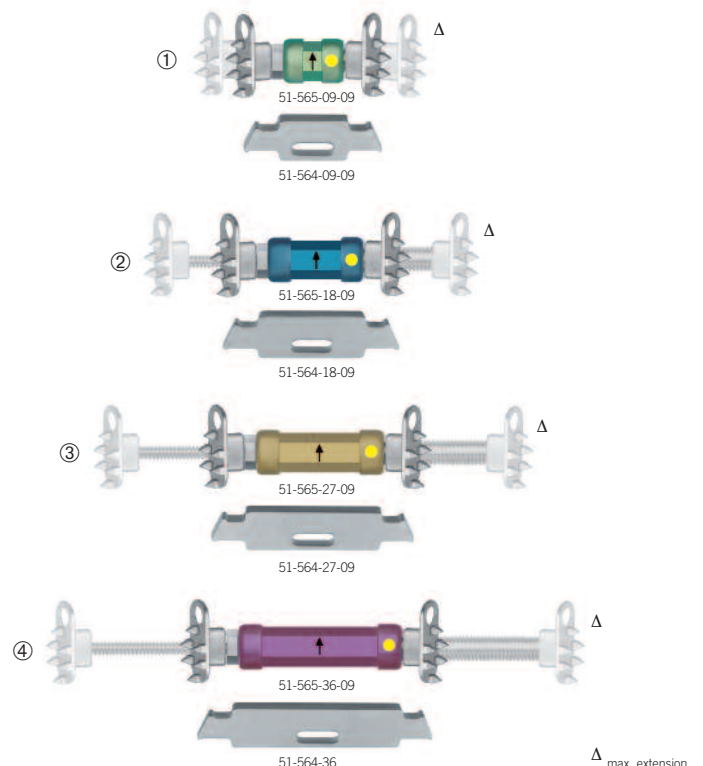
Size I	51-564-09-09
Size II	51-564-18-09
Size III	51-564-27-09
Size IV	51-564-36-09

Recommended screws

Drill-Free: 2.0 x 7 mm

Patient screwdriver

Activating wrench	51-565-90-07
Flexible activating wrench	51-565-95-07



Δ max. extension

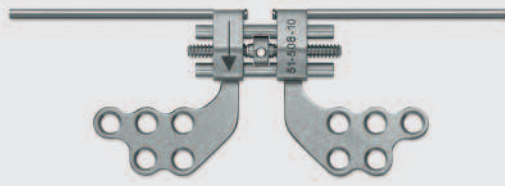
1:1 scale

* distractor including activating wrench 51-565-90-07 and 2 Cross Drive Drill-Free screws 2.0 x 7 mm
** sterile packed distractor, including activation wrench 51-565-90-07 and 2 Cross Drive Drill-Free screws 2.0 x 7 mm

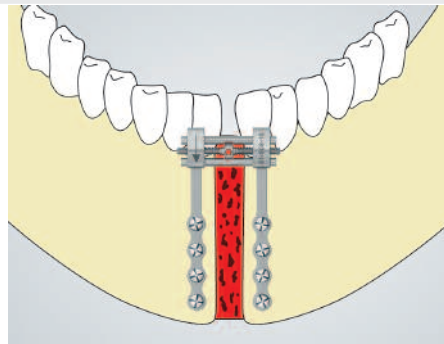
Transversal Mandibular Distraction



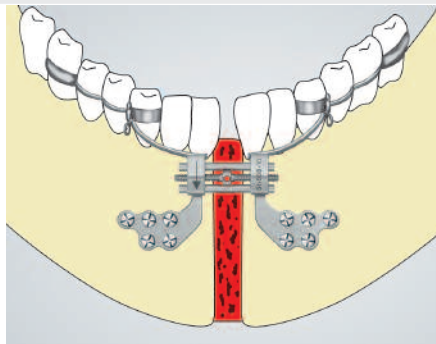
Rotterdam Midline Distractor
1:1 scale



Bologna Midline Distractor
1:1 scale



Rotterdam Midline Distractor



Bologna Midline Distractor



51-509-90-07

Rotterdam Midline Distractor

Distractors	Item Number
10 mm	51-509-10-09*
15 mm	51-509-15-09*

Recommended distraction length
2 activ. of 90° = 0.5 mm
4 activ. of 90° (complete turn) = 1.0 mm

Recommended screws
2.0 x 4 mm to 2.0 x 11 mm
Emergency: 2.3 x 5, 7, 9 mm
Drill-Free: 2.0 x 5, 7 mm

Patient screwdriver	
Activating wire	51-509-90-07
Leaflet for details	90-388-02-04

* including activating wire

Bologna Midline Distractor

Distractors	Item Number
10 mm	51-508-10-09*
15 mm	51-508-15-09*

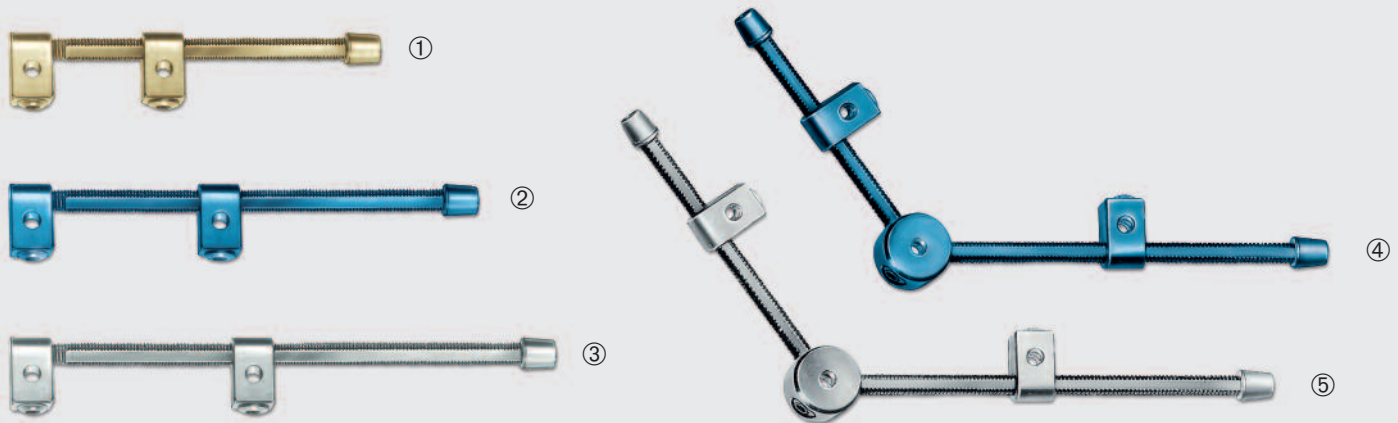
Recommended distraction length
2 activ. of 90° = 0.5 mm
4 activ. of 90° (complete turn) = 1.0 mm

Recommended screws
2.0 x 4 mm to 2.0 x 7 mm
Emergency: 2.3 x 5, 7 mm
Drill-Free: 2.0 x 5, 7 mm

Patient screwdriver	
Activating wire	51-509-90-07
Leaflet for details	90-340-02-04

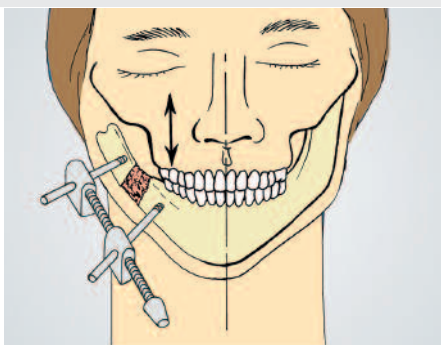
* including activating wire

External Mandibular Distraction

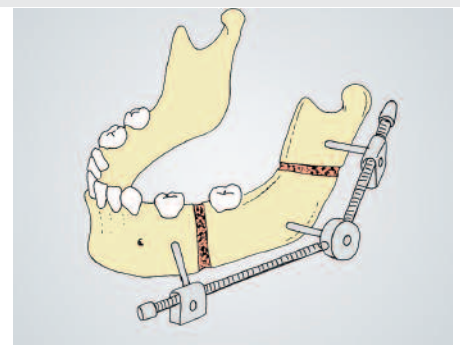
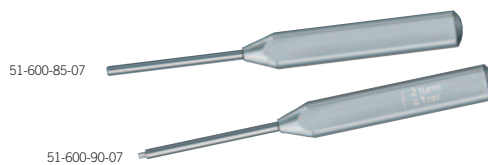


Molina Uni-directional Distractors
1:1 scale

Molina Bi-directional Distractors
1:1 scale



Molina Uni-directional Distractor



Molina Bi-directional Distractor

Molina Uni-directional Distractor

① Distractor for babies and infants **Item Number**

28 mm 51-600-28-09

Distraction length/turn 0.5 mm

to order separately

Pins, 2 x 40 mm (2 each) 51-606-40-09

Pin, 2 x 120 mm (1 each) 51-606-12-09

Pins, 2.7 x 60 mm (2 each) 51-608-60-09

② Distractor for children **Item Number**

43 mm 51-600-43-09

Distraction length/turn 0.5 mm

to order separately

Pins, 2.7 x 60 mm (2 each) 51-608-60-09

③ Distractor for adults **Item Number**

53 mm 51-600-53-09

Distraction length/turn 0.5 mm

to order separately

Pins, 3.2 x 60 mm (2 each) 51-610-60-09

Patient screwdrivers

Screwdriver for Pins 51-600-85-07

Activator and Fixation-SD 51-600-90-07

Leaflet for details 90-777-02-04

Molina Bi-directional Distractor

④ Distractors for children **Item Number**

56 x 40 mm, left 51-601-56-09

56 x 40 mm, right 51-602-56-09

Distraction length/turn 0.5 mm

to order separately

Pins, 2.7 x 60 mm (2 each) 51-608-60-09

⑤ Distractors for adults **Item Number**

76 x 40 mm, left 51-601-76-09

76 x 40 mm, right 51-602-76-09

Distraction length/turn 0.5 mm

to order separately

Pins, 3.2 x 60 mm (2 each) 51-610-60-09

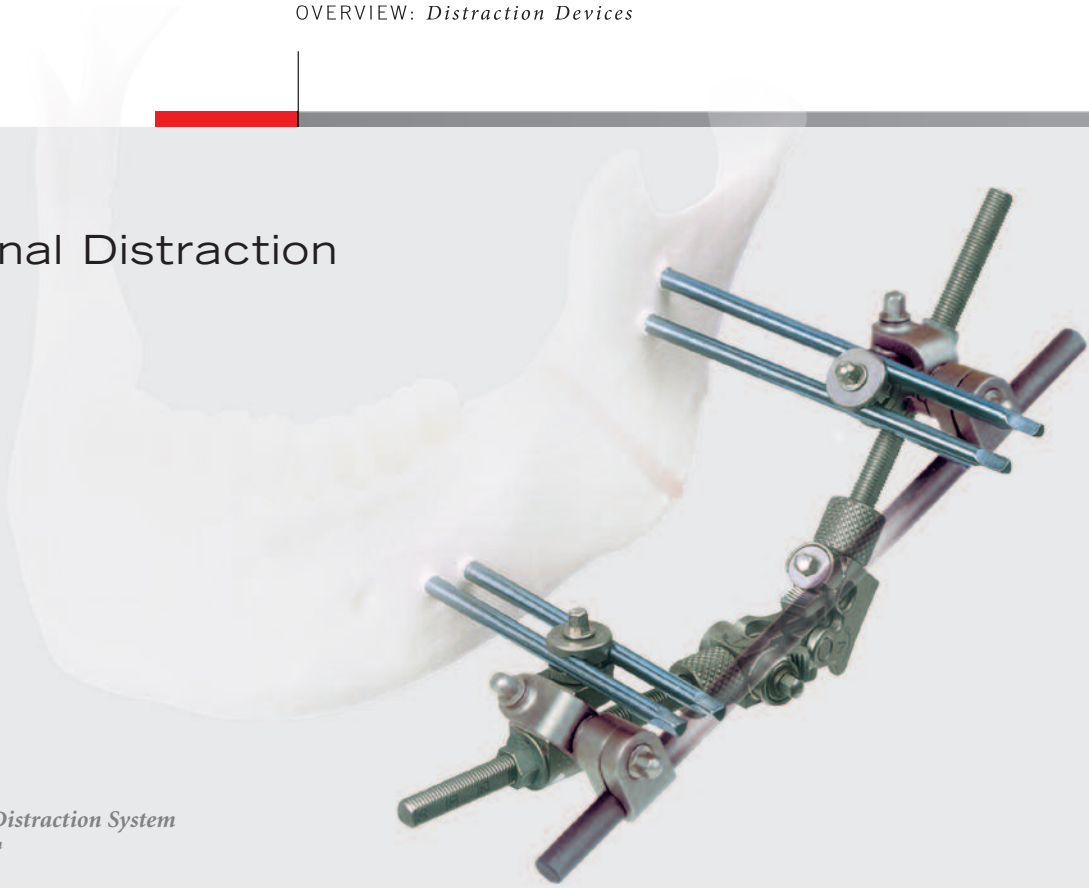
Patient screwdrivers

Screwdriver for Pins 51-600-85-07

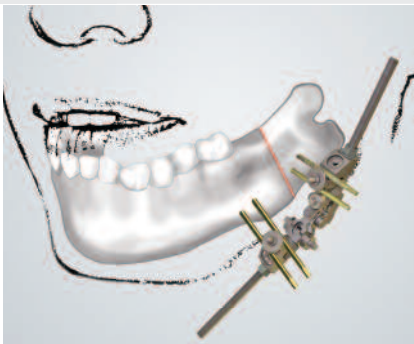
Activator and Fixation-SD 51-600-90-07

Leaflet for details 90-777-02-04

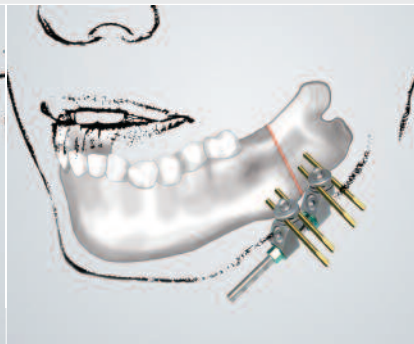
External Distraction



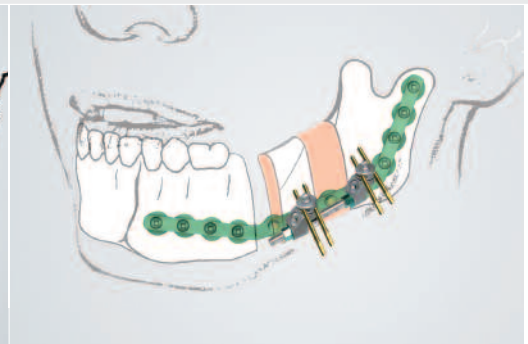
3D Xternal Distraction System
reduced illustration



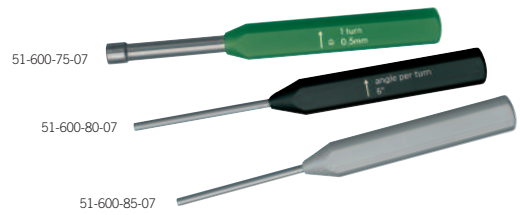
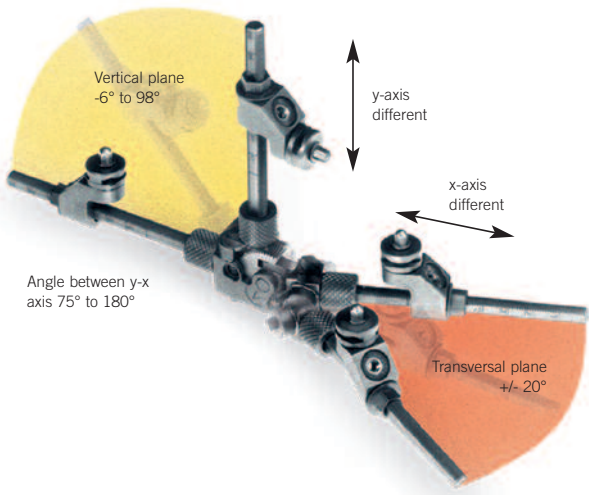
Multidirectional distraction



Unidirectional distraction



Transport distraction



3D Xternal Distraction System

3D X basic set 51-601-00-09

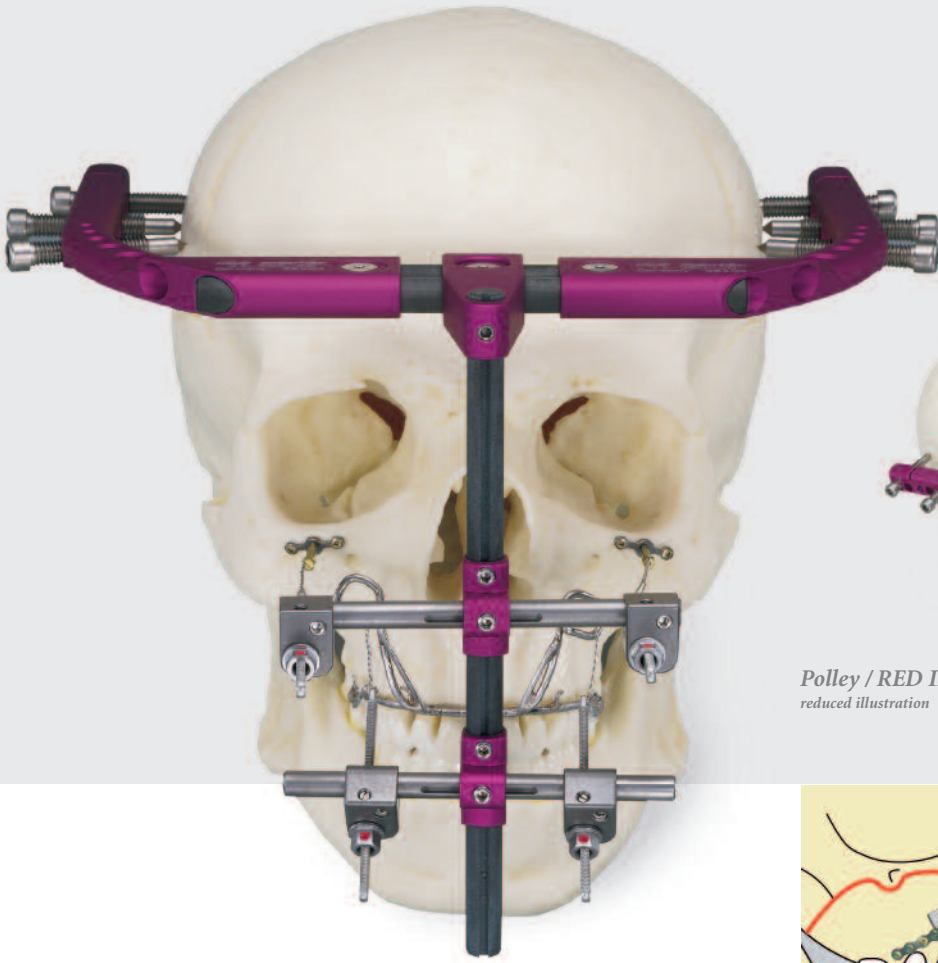
Distraction length/turn 0.5 mm

to order separately

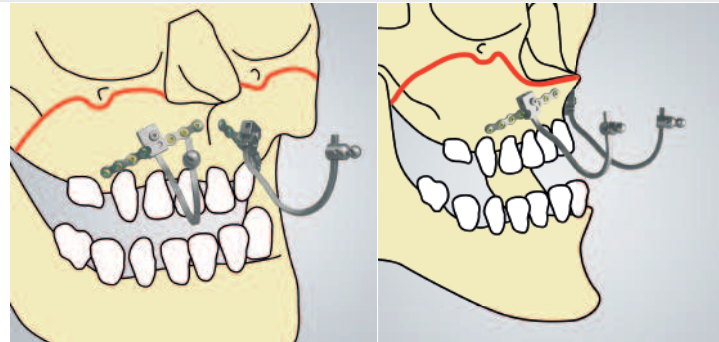
Pin 2.0 x 50 mm, steel (4 each)	51-620-50-05
Pin 2.7 x 60 mm, steel (4 each)	51-627-60-05
Pin 2.0 x 40 mm, titanium (2 each)	51-606-40-09
Pin 2.7 x 60 mm, titanium (2 each)	51-608-60-09

Instruments

Patient screwdriver, hexagonal	51-600-75-07
Angular adjustment driver	51-600-80-07
Pin driver	51-600-85-07
Leaflet for details	90-241-02-04



Polley / RED II System
reduced illustration



Leipzig Retention Plate in situ

Square rods bent into the desired form



51-580-85-07



51-575-90-07

Polley/RED II System

Rigid External Distraction System (complete)	51-580-00-04
Distraction length/turn 0.5 mm	

to order separately

Pack Fixation Screws 45 mm (10 ea.)	51-575-10-09
Pack Fixation Screws 55 mm (10 ea.)	51-575-12-09
Hexagonal Screwdriver	51-575-90-07

Instruments

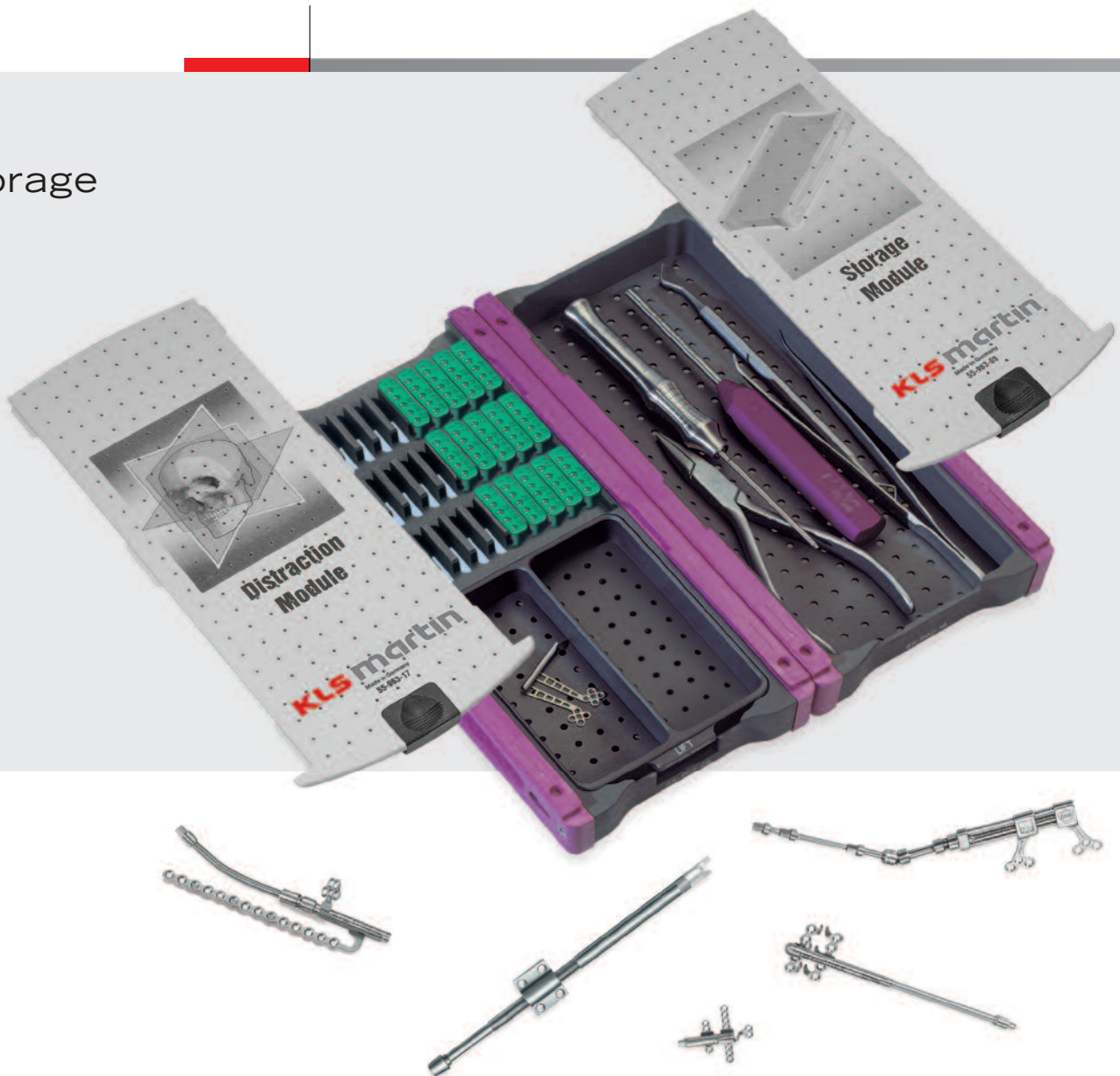
Patient screwdriver, hexagonal	51-580-85-07
O.R. screwdriver, hexagonal	51-575-90-07

Leipzig Retention Plate

Set 1.5 mm (complete)	51-582-50-04
Set 1.8 mm (complete)	51-582-55-04
Leaflet for details	90-791-02-05

Please have a look at our brochure "Rigid External Distraction"! This brochure contains many additional components (e.g. "vertical gear bar", "adjustable spindle unit" or "coloured REDs" etc).

Storage



Storage

Illustrated items	Item Number
Insert module, purple	55-962-08-04
Storage module, purple	55-962-18-04
Lid for distraction module	55-963-17-04
Lid for storage module	55-963-09-04
Insert empty, 2 sections (double height)	55-964-20-04

Alternative items	Item Number
Screw storage module, purple	55-962-28-04
Twin insert module, purple	55-962-38-04
Lid for screw storage module	55-963-08-04
Lid for 3D X system	55-963-20-04
Insert empty, universal (low height)	55-964-17-04
Insert for TRACK distractors (low height)	55-964-23-04
Insert empty, 2 sections (low height)	55-964-24-04
Insert empty, 3 sections (low height)	55-964-25-04
Insert for complete 3D X devices (double height)	55-964-33-04
Insert for 3D X single components (double height)	55-964-34-04
Insert for Horizontal Alveolar Distractor (low height)	55-964-36-04 *
Insert for TRACK distractors (low height)	55-964-37-04 *

* To be used together.

Should any more questions remain ...
... just contact us!

KLS Martin is a pioneering company in distraction osteogenesis and has established in many individual indications its own specific product portfolio.

Besides these specific disciplines the KLS Martin product range also includes the complete spectrum of systems for traumatology, orthognathic surgery and reconstruction in today's oral maxillofacial surgery. The Level One catalog is the standard work to all osteosynthesis products.

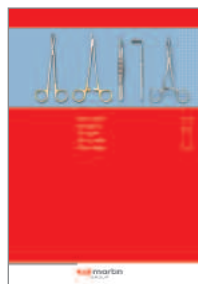
You should also get to know SonicWeld Rx®: It is worldwide patented the only resorbable osteosynthesis program, which is entirely based on ultrasound technology to weld in resorbable pins.

Resorbable osteosynthesis can just be so easy!

Of course you can also get in touch with us personally – via e-mail:
info@klsmartin.com or via our customer hotline: +49/7461-706-0



Level One Catalog
90-896-49-06



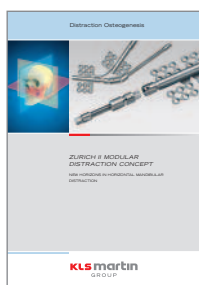
General Catalog
90-100-48-04



Dental Catalog
90-138-48-05



Patient Leaflet for details
(available in German and English)



Zurich II Modular
Distraction concept
90-175-02-04



SonicWeld Rx®
Guided Bone Regeneration
90-411-02-06



SonicWeld Rx® Catalog
90-300-02-06



SonicWeld Rx® CD-ROM
90-896-39-05

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