



---

## **Zurich II** Distraction Concept

New horizons in horizontal mandibular distraction



Oral and maxillo-facial surgery is our passion! Its further development, together with our customers, is our ambition. Every day we work on developing innovative products and services which meet the highest demands on quality, and which contribute to the wellbeing of the patient.

## **Zurich** II Distraction Concept

### New horizons in horizontal mandibular distraction

A whole variety of new products have been added in response to repeated customer demands, usually as special solutions to the therapeutic difficulties posed by specific pathologies.

The insight that intraoral distractors can be successfully used even in infants became generally accepted and customer requests for a more modular and symmetric design have been implemented along the way as well.

This brochure is intended to give you a comprehensive overview of the entire range of KLS Martin distractors for horizontal mandibular and ramus distraction. Should you be looking for a special design not included in this documentation, do not hesitate to put us to the test! We are confident that we will be able to implement your design suggestions fast and to your full satisfaction.

KLS Martin – Surgical innovation is our passion!

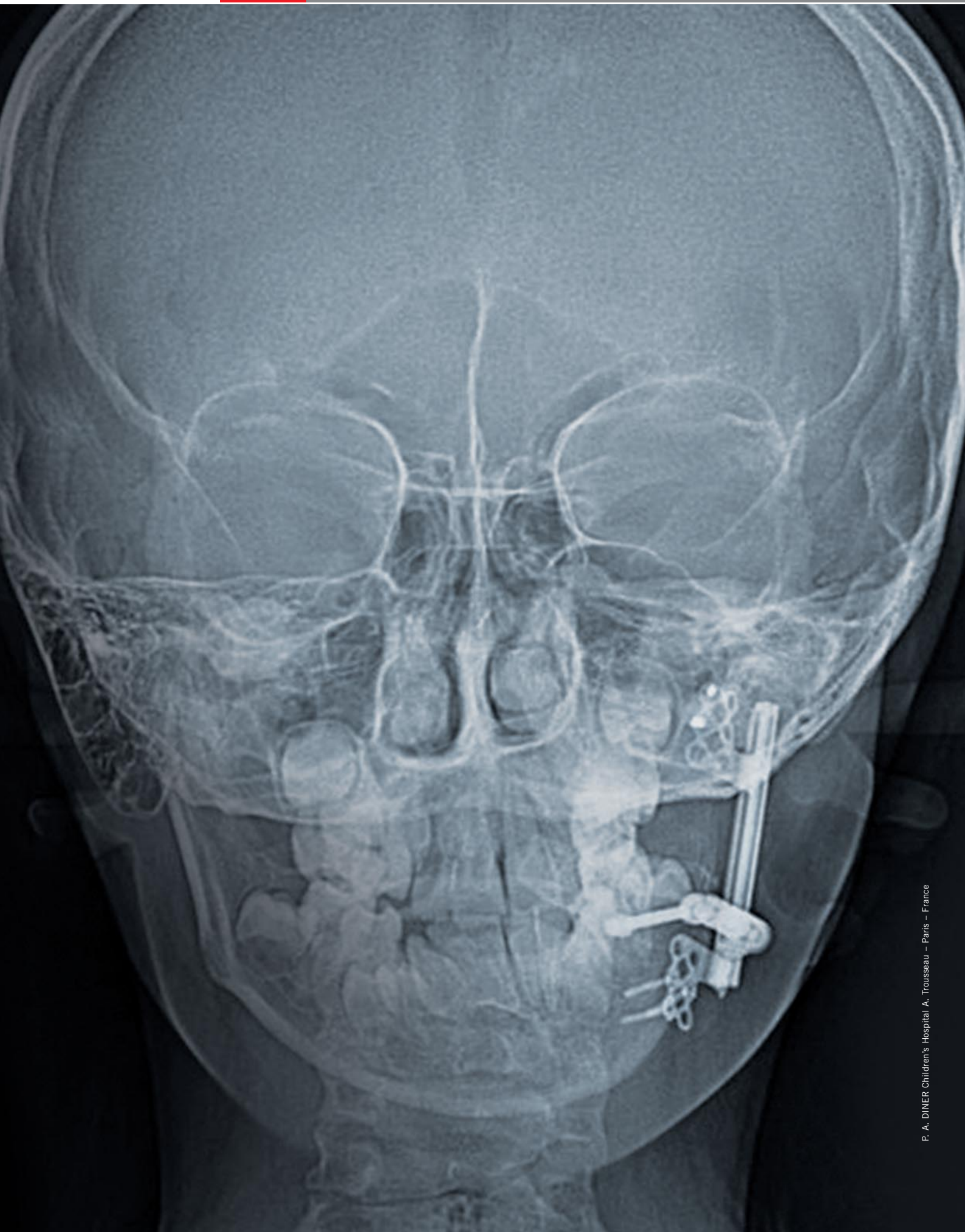
#### **Zurich II Distraction Concept**

The different anatomical forms of mandibular microsomias and asymmetries frequently make high demands on the variability and adaptability of the distractors used. Prefabricated distractor models are sometimes too static and therefore cannot meet the requirements of specific clinical tasks.

The Zurich II concept takes a completely different path: it is totally based on a modular principle, breaking down intraoral distractors into their basic components.

All system components can be easily and rapidly combined with each other to create a perfect whole.

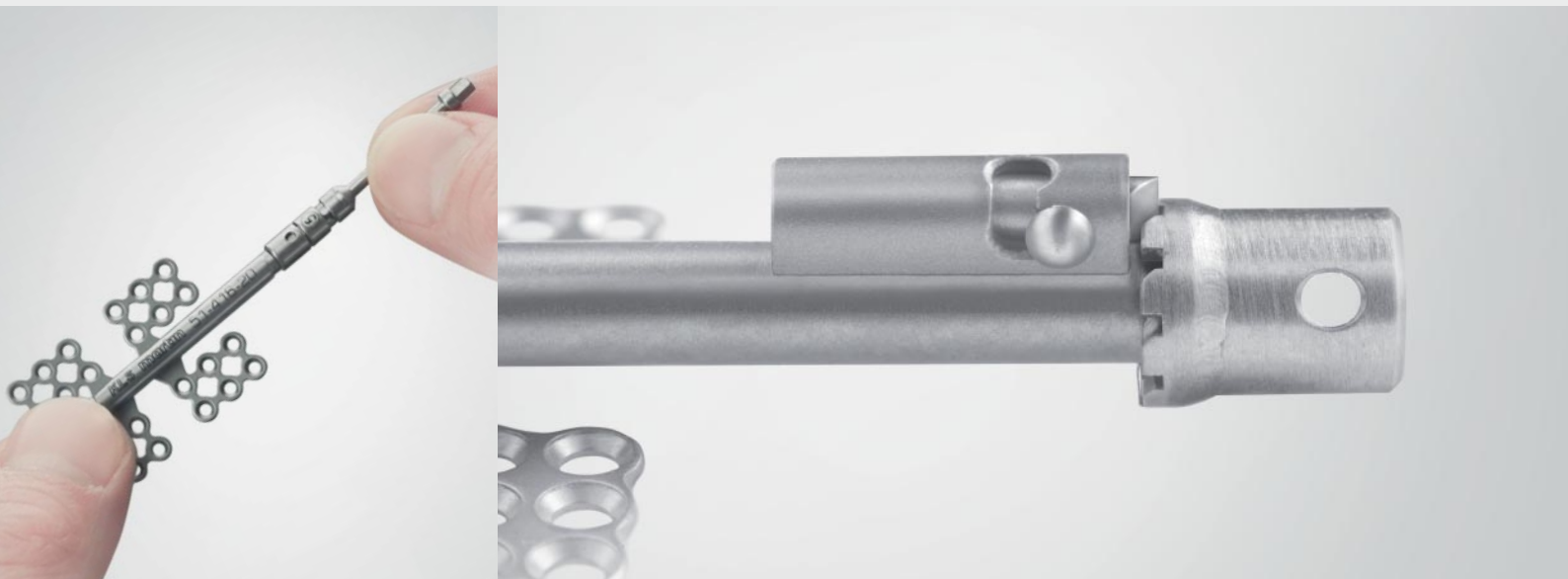




## Table of Content

	Pages
Product Features	4-7
Activation arms	8-9
Remote Release Activators	10-11
Zurich II Distractors	12-13
Micro Zurich Distractors	14-15
Screws, Drill Bits and Screwdrivers	16-19
Instruments	20-21
Storage Module	22-23
Unidirectional Mandibular Distractors	24-30
Horizontal Distractor	24
Mandibular Telescoping Distractor	25
Ramus Distractor	26
Right Angle Driven (RAD) Distractor	27
Ramus Transport Distractor	28-29
Bidirectional Mandibular Distractors	31-32
Zurich Wood Distractor	31
Zurich Mandibular Distractor	32
Instructions for use	32-33
Service	34-35

## Product Features maximum benefit

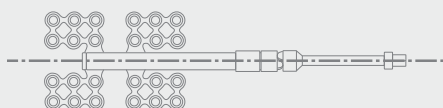


### **Product advantages**

- Fast and easy creation of customized problem solutions meeting the anatomical requirements of each patient
- Perfected modularity – minimized stock-keeping
- The distractors can be easily adapted at any time (even intraoperatively).
- Low cross-section of the Zurich distractors, with proven record of high stability
- Symmetrical design – no right and left versions
- No waiting times for special individual configurations
- Customized activation cardanics for each individual patient
- Activation spindle can be attached and removed as needed. This increases patient convenience during the consolidation period.

# Zurich II Distraction Concept

## Symmetrical design

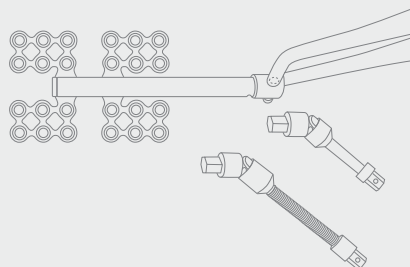


## Advantages

The symmetrical design allows you to use the same distractor on the left or on the right side. This reduces your stock-keeping needs and lowers the amount of capital tied up in distractors held in stock. The fixing plates can be cut to size intraoperatively to adapt them to individual anatomical requirements.

The plates available include the well-known clover-leaf plates and mesh designs. The distractors can be installed in place with the plates down or up.

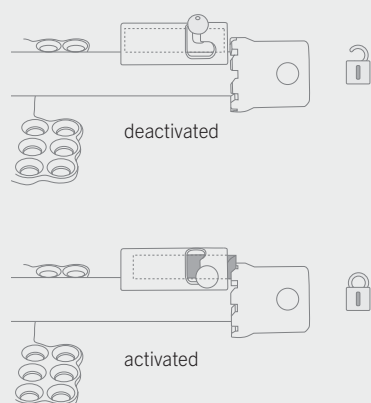
## A whole range of activators



The Zurich II distractor line can be supplemented with a whole range of activators (see pages 8-11).

The various activators come in a modular design as well and therefore can be freely combined with each other. Besides, there is the option of using additional cardanic extensions for more flexibility. The activator can be removed during consolidation period for increased patient convenience.

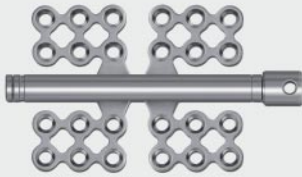
## Anti-relapse ratchet



Some distractors of the Zurich II and Micro Zurich product lines feature an anti-relapse ratchet that reliably prevents backward rotation of the distractor and consequential relapse of the distracted bone area. This stop can be deactivated intraoperatively for function test performance.

## Maximum flexibility thanks to optional combination of different activators

Distractor, Mesh design,  
middle-driven



Example: Activator length 61 mm  
1:1 scale

Rigid extension 20 mm  
for activation arm

⑩



Single cardanic extension  
for activation arm

⑨














Activation arm, rigid,  
incl. cardanic element, 35 mm

⑤



### Activation arms

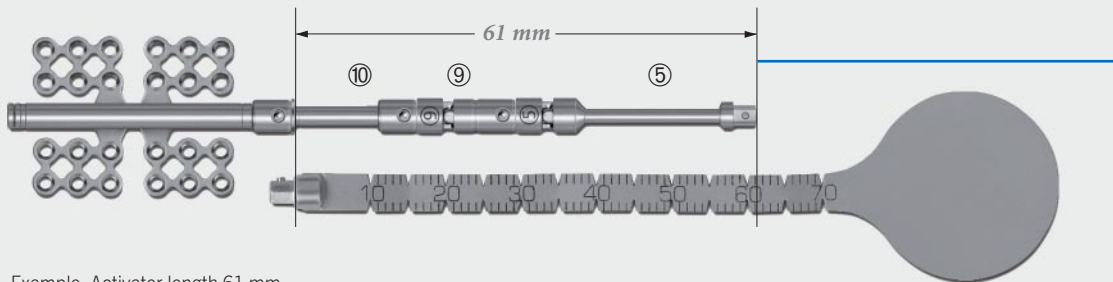
	Activation arms	Item No.
①	 Activation arm, flexible, incl. cardanic element, 30 mm	51-400-30-09
②	 Activation arm, flexible, incl. cardanic element, 40 mm	51-400-40-09
③	 Activation arm, flexible, incl. cardanic element, 50 mm	51-400-50-09
④	 Activation arm, rigid, incl. cardanic element, 25 mm	51-401-25-09
⑤	 Activation arm, rigid, incl. cardanic element, 35 mm	51-401-35-09
⑥	 Activation arm, rigid, incl. cardanic element, 45 mm	51-401-45-09
⑦	 Activation arm, rigid, incl. cardanic element, 50 mm, clipable	51-401-50-09
Additional		Item No.
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
1/1	 Trocar tip for activation arm	51-401-93-09



#### Removal of activation arm

After completion of distraction, the activator can be removed easily by using a special disconnection forceps (for more information, see page 21 + 33).





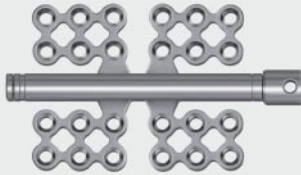
Example: Activator length 61 mm  
1:1 scale

### Combination options

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

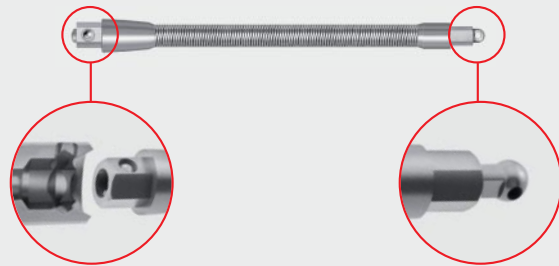
## Maximum safety and patient comfort thanks to Remote Release Activators

Distractor, Mesh design, middle-driven



Example: Activator length 53 mm  
1:1 scale

Remote Release Activator, flexible, 53 mm



During the consolidation phase – once the active distraction process has been completed – distraction activators are basically no longer needed. Quite the contrary, they are not only a constant source of inconvenience to the patient but also involve elevated risk of infection right at the percutaneous point. Conventional distraction activators are disconnected from the distractor body with the aid of a special forceps. This usually requires that the operation situs has to be opened again to access the connection point between distractor and activator. Mainly in difficult accessible anatomical regions this can be both time-consuming and difficult and moreover the patient is exposed to additional stress.

Especially for such cases we developed an alternative, a new generation of activators:

### **The Remote Release Activators.**

The special and completely new feature about these activators is that the mechanism of coupling and uncoupling is located at the point of activation with the patient screwdriver. Thereby the uncoupling of the activator can be initiated directly from the outside and the dissection of the way to the connection point between distractor and activator is not applicable anymore.

Remote Release Activators fit to all standard couplings that are designed for removable activators, such as almost all distractors specified in this brochure. They provide an alternative option in addition to the proven, conventional activators. As standard Remote Release Activators are provided without cardanic element, they may be combined with the cardanic element 51-401-91-09. If one chooses an additional cardanic element, it will stay with the distractor after removal of the Remote Release Activator.

### Uncoupling procedure



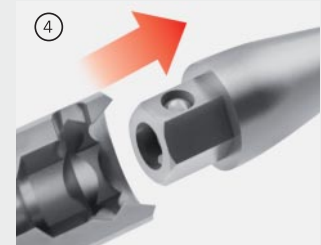
1. Pull out the release lug (some resistance needs to be overcome).



2. The release lug stands in exposed position by turning it clockwise or anti-clockwise by 90°.



3. This lowers the ball and socket of the universal coupling of the activator.








4. The activator can now be easily removed.

### Coupling procedure

The coupling procedure is exactly the same up to step 3. Once the ball and socket is lowered, the activator can be easily plugged in place. To lock it, rotate the release lug back by 90° and push it in. This causes the internal ball to rise, thus locking the activator in place.

### Remote Release Activators

	Activators	Item No.
	Remote Release Activator, flexible, 33 mm	51-411-33-09
	Remote Release Activator, rigid, 33 mm	51-410-33-09
	Remote Release Activator, rigid, 43 mm	51-410-43-09
	Remote Release Activator, rigid, 53 mm	51-410-53-09
	Single cardanic extension for activation arm	51-401-91-09

Each Remote Release Activator comes with a dedicated instruction for use providing all important information for handling the device.

## Zurich II Distraction System The distractor bodies

### End-driven distractors

(the posterior plate stays in place, while the anterior plate moves forward)

	Item No.	Distraction length	Ratchet	Screws	1 turn =	Pat. SD
	51-416-15-09	15 mm	no	1.5 Micro	0.5 mm	
	51-416-20-09	20 mm	no	1.5 Micro	0.5 mm	
	51-416-25-09	25 mm	no	1.5 Micro	0.5 mm	
51-416-30-09	30 mm	no	1.5 Micro	0.5 mm		
	Item No.	Distraction length	Ratchet	Screws	1 turn =	Pat. SD
	51-426-15-09	15 mm	yes	1.5 Micro	0.5 mm	
	51-426-20-09	20 mm	yes	1.5 Micro	0.5 mm	
	51-426-25-09	25 mm	yes	1.5 Micro	0.5 mm	
51-426-30-09	30 mm	yes	1.5 Micro	0.5 mm		

51-500-90-07  
Patient screwdriver



**Middle-driven distractors**  
**(both plates start from central position bilaterally)**

	Item No.	Distraction length	Ratchet	Screws	1 turn =	Pat. SD
	51-415-15-09	15 mm	no	1.5 Micro	0.5 mm	
	51-415-20-09	20 mm	no	1.5 Micro	0.5 mm	
	51-415-25-09	25 mm	no	1.5 Micro	0.5 mm	
51-415-30-09	30 mm	no	1.5 Micro	0.5 mm		
	Item No.	Distraction length	Ratchet	Screws	1 turn =	Pat. SD
	51-425-15-09	15 mm	yes	1.5 Micro	0.5 mm	
	51-425-20-09	20 mm	yes	1.5 Micro	0.5 mm	
	51-425-25-09	25 mm	yes	1.5 Micro	0.5 mm	
51-425-30-09	30 mm	yes	1.5 Micro	0.5 mm		

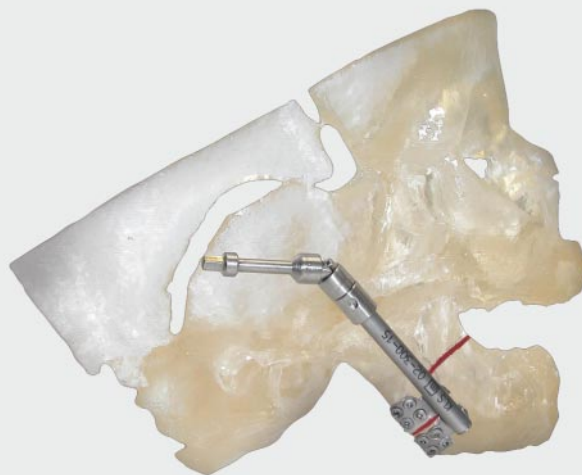
51-500-90-07  
 Patient screwdriver





## Zurich II Distraction System Micro Zurich Distractors

Early intraoral distraction therapy for babies and infants aged up to one year requires distractors with an especially small cross-section to ensure that the distractor can be reliably covered with soft tissue. The Micro Zurich product line has been designed with exactly this goal in mind.

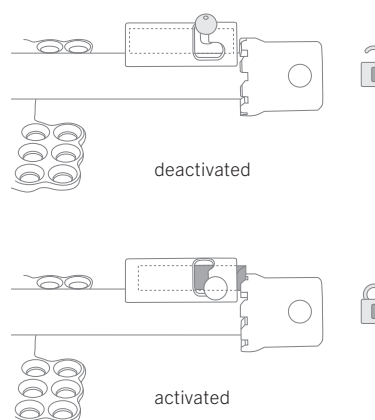


### Product features

- All distractors are symmetrical.  
There are no right/left versions.
- Almost all Micro Zurich distractors are fixed in place with 1.0 mm microscrews.  
  
1 turn = 0.3 mm distraction length  
(end-driven distractors)  
1 turn = 0.6 mm distraction length  
(middle-driven distractors)
- Different plates and mesh designs provide the flexibility for optimum fixation according to anatomical requirements.
- Just as in the Zurich II product line, a distinction is made between middle-driven, end-driven and front-driven distractors.
- In addition, the user can select from the entire range of activation arms described on page 8-11.

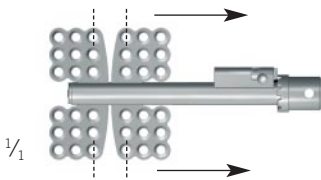

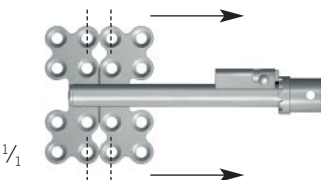

### The anti-relapse ratchet

Some distractors of the Zurich II and Micro Zurich product lines feature an anti-relapse ratchet that reliably prevents backward rotation of the distractor and consequential relapse of the distracted bone area. This ratchet can be deactivated intra-operatively for function test performance.



### End-driven distractors

(the posterior plate stays in place, while the anterior plate moves forward)

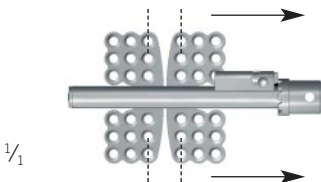
	Item No.	Distraction length	Ratchet	Screws	1 turn =	Pat. SD
	51-424-15-09	15 mm	yes	1.0 Micro	0.3 mm	
	51-424-20-09	20 mm	yes	1.0 Micro	0.3 mm	
	51-424-25-09	25 mm	yes	1.0 Micro	0.3 mm	
51-424-30-09	30 mm	yes	1.0 Micro	0.3 mm		
	Item No.	Distraction length	Ratchet	Screws	1 turn =	Pat. SD
	51-428-15-09	15 mm	yes	1.5 Micro	0.3 mm	
	51-428-20-09	20 mm	yes	1.5 Micro	0.3 mm	
	51-428-25-09	25 mm	yes	1.5 Micro	0.3 mm	
51-428-30-09	30 mm	yes	1.5 Micro	0.3 mm		

51-430-95-07  
Patient screwdriver



### Middle-driven distractors

(both plates move from central position bilaterally)

	Item No.	Distraction length	Ratchet	Screws	1 turn =	Pat. SD
	51-423-15-09	15 mm	yes	1.0 Micro	0.6 mm	
	51-423-20-09	20 mm	yes	1.0 Micro	0.6 mm	
	51-423-25-09	25 mm	yes	1.0 Micro	0.6 mm	
51-423-30-09	30 mm	yes	1.0 Micro	0.6 mm		

51-423-95-07  
Patient screwdriver




## Screws, Drill Bits and Screwdrivers 1.0 mm Micro

**suited for:**

- Most Micro Zurich Distractors


### maxDrive®



Micro Screws		self-retaining	
	Ø x length	maxDrive®	STERILE   R
		1.2 x 2 mm	
	1.2 x 3 mm	25-870-03-91	25-870-03-71
	1.2 x 4 mm	25-870-04-91	25-870-04-71
	1.2 x 5 mm	25-870-05-91	25-870-05-71
	1.2 x 6 mm	25-870-06-91	25-870-06-71
	1.2 x 7 mm		
	1.2 x 9 mm	25-870-09-91	25-870-09-71
	1.2 x 11 mm	25-870-11-91	25-870-11-71
	1.2 x 13 mm	25-870-13-91	25-870-13-71


### Centre Drive®



Micro Screws		self-retaining	
	Ø x length	Centre Drive®	STERILE   R
		1.0 x 2 mm	25-660-02-09
	1.0 x 3 mm	25-660-03-09	25-660-03-75
	1.0 x 4 mm	25-660-04-09	25-660-04-75
	1.0 x 5 mm	25-660-05-09	25-660-05-75
	1.0 x 6 mm	25-660-06-09	25-660-06-75
	1.0 x 7 mm	25-660-07-09	25-660-07-75
	1.0 x 9 mm	25-660-09-09	25-660-09-75
	1.0 x 11 mm	25-660-11-09	25-660-11-75
	1.0 x 13 mm	25-660-13-09	25-660-13-75


### Emergency Screws

self-retaining

	Ø x length	Centre Drive®	STERILE   R
		1.2 x 3 mm	25-661-03-09
	1.2 x 5 mm	25-661-05-09	25-661-05-75

### Drill-Free Screws

self-retaining

	Ø x length	Centre Drive®
		1.2 x 5 mm
	1.2 x 7 mm	25-601-07-09
	1.2 x 9 mm	25-601-09-09
	1.2 x 11 mm	25-601-11-09
	1.2 x 13 mm	25-601-13-09



51-430-95-07  
Patient screwdriver  
straight



51-423-95-07  
Patient screwdriver  
straight



25-402-99-07  
Screwdriver handle  
size "M"



25-480-99-07  
Screwdriver handle  
size "S"

### Drill bits (J-Notch attachment)

	Ø x Length		Stop	Item No.
		0.7 x 50 mm		3 mm
0.7 x 50 mm			3 mm	25-454-03-91
0.7 x 50 mm			5 mm	25-454-05-07
0.7 x 50 mm			5 mm	25-454-05-91
0.7 x 50 mm			7 mm	25-454-07-07
0.7 x 50 mm			7 mm	25-454-07-91
for dense bone		Stop	Item No.	
0.8 x 50 mm		5 mm	25-457-05-07	
0.8 x 50 mm		5 mm	25-457-05-91	
0.8 x 50 mm		7 mm	25-457-07-91	

### Icon explanations

- Steel
- Titanium
- Units/pack
- maxDrive®
- Centre Drive®
- J-Notch attachment
- Dental attachment

**STERILE | R** Sterile packed implants

### Drill bits for angled handpiece (dental attachment)

	Ø x Length	Stop	Item No.
	0.7 x 18 mm	5 mm	50-916-05-07
	0.7 x 20 mm	7 mm	50-916-07-07

### Screwdriver blades

	Screwdriver	Centre Drive®
	Size "S"	25-492-98-07
	Size "M"	25-428-98-07
	Angled screwdriver	50-910-10-07


## Screws, Drill Bits and Screwdrivers 1.5 mm Micro

### suited for:

- Zurich II Distractors
- Micro Zurich Distractors (partially)
- Horizontal and Ramus Distractors
- Mandibular Telescoping Distractors
- Zurich Wood Distractors
- Zurich Bidirectional Mandibular Distractors
- Right Angle Driven (RAD) Distractors
- Ramus Transport Distractors


### maxDrive®





Micro Screws		self-retaining	
	Ø x length	Centre Drive®	STERILE   R
		1.5 x 3.5 mm	25-875-03-09
	1.5 x 4 mm	25-875-04-09	25-875-04-75
	1.5 x 5 mm	25-875-05-09	25-875-05-75
	1.5 x 6 mm	25-875-06-09	25-875-06-75
	1.5 x 7 mm	25-875-07-09	25-875-07-75
	1.5 x 8 mm	25-875-08-09	25-875-08-75
	1.5 x 9 mm	25-875-09-09	25-875-09-75
	1.5 x 11 mm	25-875-11-09	25-875-11-75
	1.5 x 13 mm	25-875-13-09	25-875-13-75


### Centre Drive®




Micro Screws		self-retaining	
	Ø x length	Centre Drive®	STERILE   R
		1.5 x 3.5 mm	25-665-03-09
	1.5 x 4 mm	25-665-04-09	25-665-04-75
	1.5 x 5 mm	25-665-05-09	25-665-05-75
	1.5 x 6 mm	25-665-06-09	25-665-06-75
	1.5 x 7 mm	25-665-07-09	25-665-07-75
	1.5 x 8 mm	25-665-08-09	25-665-08-75
	1.5 x 9 mm	25-665-09-09	25-665-09-75
	1.5 x 11 mm	25-665-11-09	25-665-11-75
	1.5 x 13 mm	25-665-13-09	25-665-13-75

Emergency Screws		self-retaining	
	Ø x length	Centre Drive®	STERILE   R
		1.8 x 3.5 mm	25-876-03-09
	1.8 x 4 mm	25-876-04-09	
	1.8 x 5 mm	25-876-05-09	25-876-05-75
	1.8 x 7 mm	25-876-07-09	25-876-07-75

Emergency Screws		self-retaining	
	Ø x length	Centre Drive®	STERILE   R
		1.8 x 3.5 mm	25-666-03-09
	1.8 x 5 mm	25-666-05-09	25-666-05-75
	1.8 x 7 mm	25-666-07-09	25-666-07-75

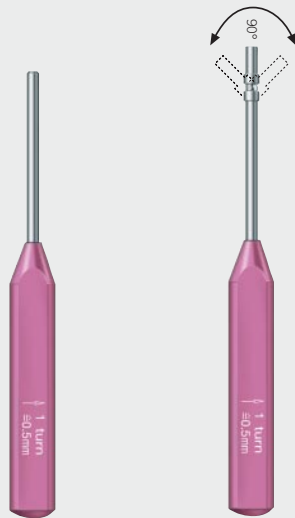
Drill-Free Screws		self-retaining	
	Ø x length	Centre Drive®	STERILE   R
		1.5 x 3.5 mm	25-878-03-09
	1.5 x 4 mm	25-878-04-09	25-878-04-75
	1.5 x 5 mm	25-878-05-09	25-878-05-75
	1.5 x 6 mm	25-878-06-09	25-878-06-75
	1.5 x 7 mm	25-878-07-09	25-878-07-75

Drill-Free Screws		self-retaining	
	Ø x length	Centre Drive®	STERILE   R
		1.5 x 4 mm	25-668-04-09
	1.5 x 5 mm	25-668-05-09	25-668-05-75
	1.5 x 6 mm	25-668-06-09	25-668-06-75
	1.5 x 7 mm	25-668-07-09	25-668-07-75





**maxDrive®**  
in 5-piece clip magazines  
All screws are made of titanium



51-500-90-07  
Patient screwdriver  
straight

51-505-90-07  
Patient screwdriver  
angled



25-402-99-07  
Screwdriver handle  
size "M"



51-505-91-07  
Patient screwdriver  
for handle 25-402-99-07

### Drill bits (J-Notch attachment)

 	Ø x Length	Stop	Item No.
	1.1 x 50 mm	3.5 mm	25-452-03-07
	1.1 x 50 mm	3.5 mm	25-452-03-91
	1.1 x 50 mm	5 mm	25-452-05-07
	1.1 x 50 mm	5 mm	25-452-05-91
	1.1 x 50 mm	7 mm	25-452-07-07
	1.1 x 50 mm	7 mm	25-452-07-91
	1.1 x 50 mm	9 mm	25-452-09-07
	1.1 x 50 mm	9 mm	25-452-09-91
	for transbuccal access		Stop
1.1 x 105 mm	5 mm	50-511-05-07	
1.1 x 105 mm	7 mm	25-452-57-07	
1.1 x 105 mm	20 mm	25-452-61-07	

Icon explanations

- Steel
- Titanium
- Units/pack
- maxDrive®
- Centre Drive®
- J-Notch attachment
- Dental attachment

**STERILE | R** Sterile packed implants

### Drill bits for angled handpiece (dental attachment)

 	Ø x Length	Stop	Item No.
	1.1 x 20 mm	7 mm	50-920-07-07
	1.1 x 30 mm	no stop	50-920-00-07

### Screwdriver blades

 	Screwdriver	Centre Drive®	maxDrive®
	Size "M"	25-430-98-07	25-489-97-07
	Size "L" *		25-438-97-07
	Angled screwdriver	50-910-15-07	50-916-15-07

\* Screwdriver, size "L", item no. 25-406-99-07; 25-407-03-04; 25-407-04-04; 25-410-00-07; 25-411-00-07; 50-425-05-07

## Instruments for Zurich II Distraction System 1.0 mm and 1.5 mm Micro

### 1.0 mm Micro



1/2

51-525-80-07  
15.5 cm / 6"  
Plate-holding forceps,  
curved



1/2

Lindorf  
25-435-10-07  
16 cm / 6 1/4"  
Plate-holding instrument

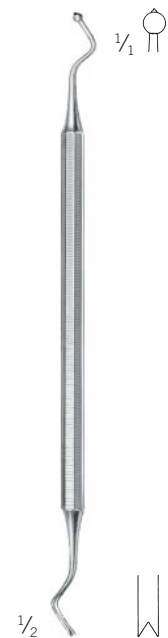


### 1.5 mm Micro



1/2

25-441-16-07  
18 cm / 7"  
Plate-holding forceps





1/2

Lindorf  
25-435-15-07  
18 cm / 7"  
Plate-holding forceps





Icon explanations

-  1.0 mm
-  1.5 mm

**TC GOLD** TC Instruments with hard-metal inserts

For both sizes



25-486-13-07  
13 cm / 5"  
Modeling pliers  
2 items recommended



51-400-03-07  
15.5 cm / 6"  
Body holding forceps



51-400-02-07  
18 cm / 7"  
Cutter



51-400-04-07  
18 cm / 7"  
Activator measuring device



51-400-01-07  
15.5 cm / 6"  
Activation arm disconnection forceps



## Zurich II Distraction System Storage Module

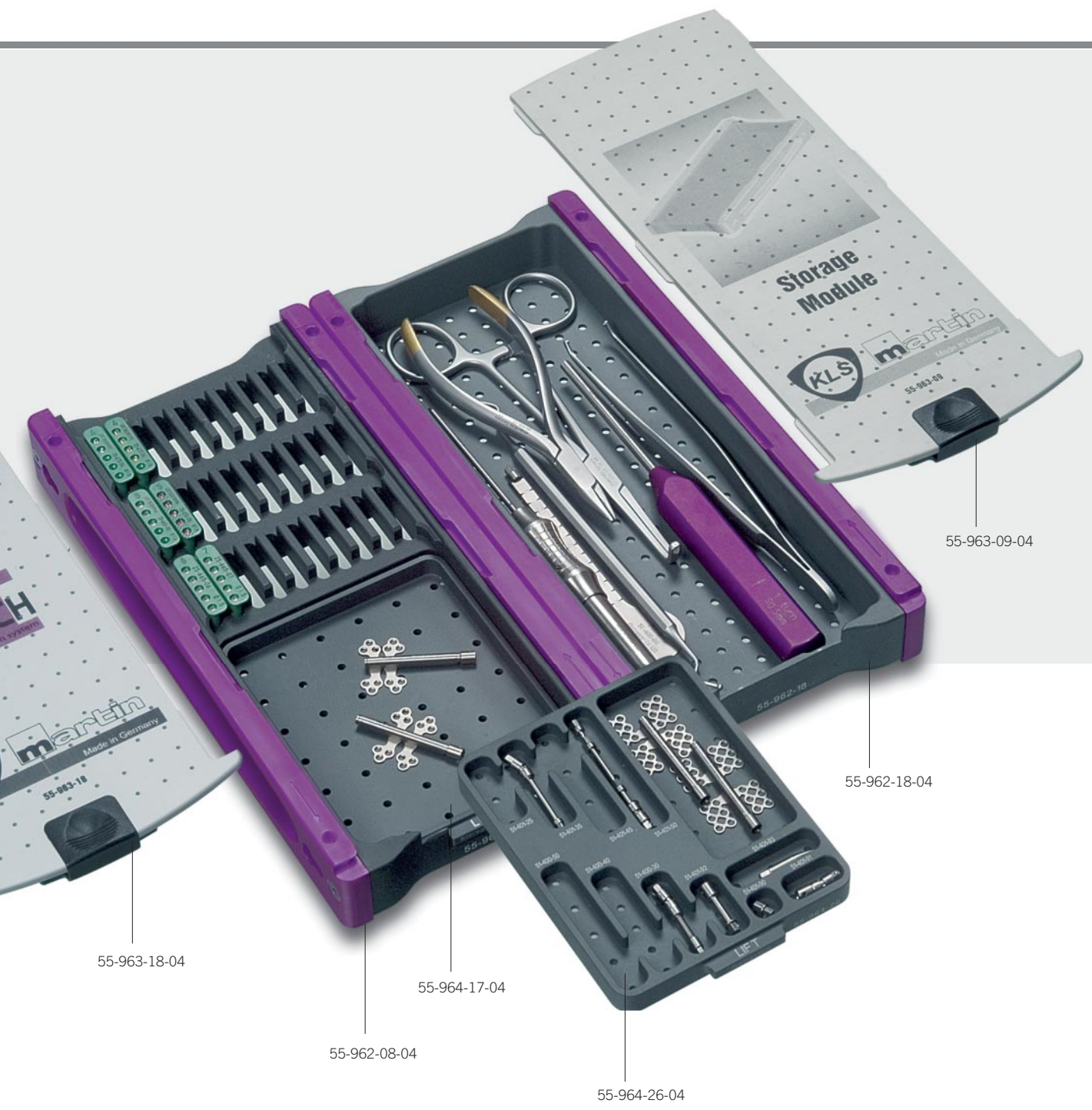


### Storage Module

This storage proposal offers yourself enough room to integrate the most important application tools.

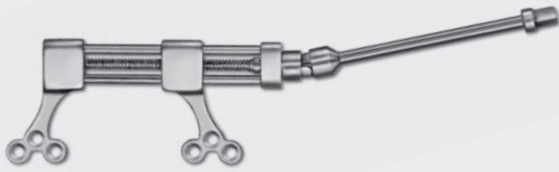


	Item No.
Basic module, purple	55-962-08-04
Insert, universal	55-964-17-04
Insert for activation arms	55-964-26-04
Lid for Zurich II distraction module	55-963-18-04
Storage module, purple	55-962-18-04
Lid for storage module	55-963-09-04

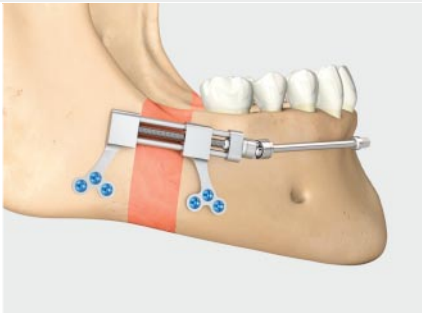




## Unidirectional Mandibular Distraction




Horizontal Distractor  
1:1 scale




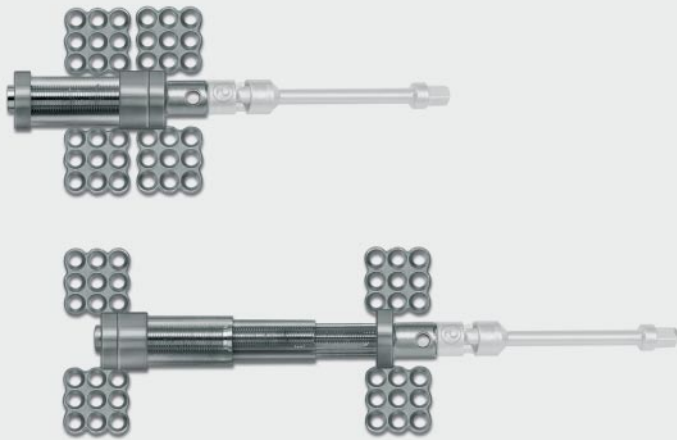
Horizontal Distractor

- Low-profile distractors
- Use for mandibular body
- Symmetrical design – no right or left versions
- Fixation optionally with the screw holes downwards or upwards (for fixation in the oblique line)
- Cardanic activators offer maximum flexibility for intraoral activation.
- Activation arm is already included.

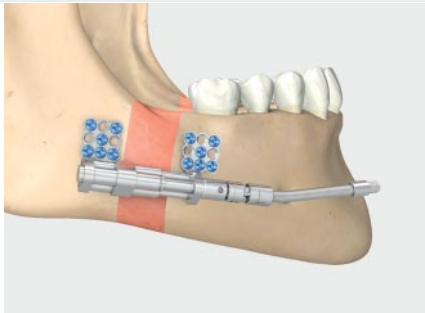
### Horizontal Distractors

	Distractors	Item No.
	10 mm	51-500-10-05
	15 mm	51-500-15-05
	20 mm	51-500-20-05

	1 turn = 0.5 mm distraction length Recommended patient screwdrivers:	
	Straight	51-500-90-07
	Angled	51-505-90-07



Mandibular Telescoping Distractor, 30 mm  
1:1 scale




Mandibular Telescoping Distractor


Using intraoral distractors for the therapy of serious mandibular micrognathias or asymmetries poses the basic problem of how to accommodate the relatively large spindle of the distractor in the patient's mouth.

The telescopic mandibular distractor provides the solution. Just like a car antenna, this distractor extends continuously in various phases, reaching its full volume only at the end of the distraction process.

### Mandibular Telescoping Distractors

	Distractors w/o activation arms	Item No.
	20 mm	51-350-20-09
	30 mm	51-350-30-09

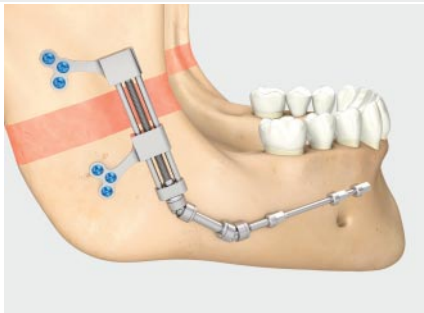
*Activation arms see page 8-11*

	1 turn = 0.3 mm distraction length Recommended patient screwdrivers:	
	Straight	51-555-85-07
	Angled	51-555-95-07

## Unidirectional Mandibular Distraction



Ramus Distractor  
1:1 scale



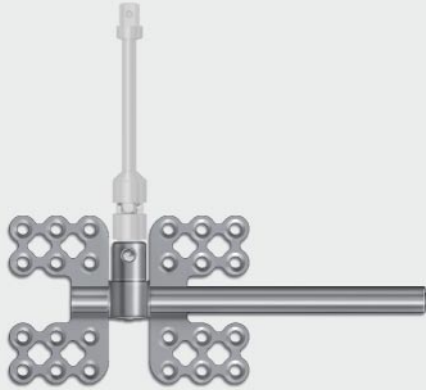
Ramus Distractor

- Low-profile distractors
- Use for ascending ramus
- Symmetrical design – no right or left versions
- Fixation optionally with the screw holes downwards or upwards (for fixation in the oblique line)
- Cardanic activators offer maximum flexibility for intraoral activation.
- Activation arm is already included.

### Ramus Distractors

	Distractors	Item No.
	15 mm	51-510-15-05
	20 mm	51-510-20-05
	25 mm	51-510-25-05

	1 turn = 0.5 mm distraction length Recommended patient screwdrivers:	
	Straight	51-500-90-07
	Angled	51-505-90-07



Right Angle Driven (RAD) Distractor  
1:1 scale




Intraoral fixation of a distractor with 90° activation

Distraction of the ascending ramus makes special demands on intraoral distractors. The surgeon normally prefers intraoral activation in these cases as well, but this is especially hard to realize here because space is scarce.

Due to their offset activator providing 90-degree access, these distractors offer excellent support in this situation, facilitating intraoral activation a great deal. They are always fixed in place with 1.5-mm micro screws. One screwdriver turn is equivalent to a distraction length of 0.1 mm.

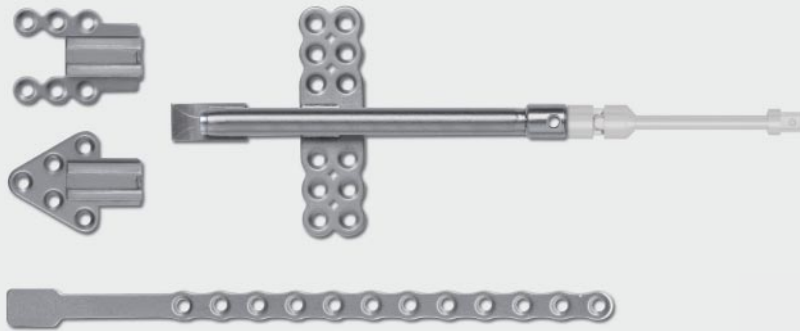
### Right Angle Driven (RAD) Distractors

	Distractors w/o activation arms	
	Distractors	Item No.
	20 mm, left	51-612-20-09
	25 mm, left	51-612-25-09
	20 mm, right	51-613-20-09
25 mm, right	51-613-25-09	

**Activation arms see page 8-11**

	1 turn = 0.1 mm distraction length Recommended patient screwdrivers:	
	Screwdriver	Item No.
Straight	51-560-90-07	

## Unidirectional Mandibular Distraction



Consolidation plate




Ramus Transport Distractor  
1:1 scale




Ramus Transport Distractors

Optionally: Use of the consolidation plate

### Ramus Transport Distractors

	Distractors w/o activation arms	
	Front-driven	Item No.
	20 mm	51-420-20-09
	25 mm	51-420-25-09
	30 mm	51-420-30-09
End-driven		Item No.
	20 mm	51-421-20-09
	25 mm	51-421-25-09
	30 mm	51-421-30-09

	To order separately	
	Consolidation plate	51-422-12-09

	1 turn = 0.5 mm distraction length Recommended patient screwdrivers:	
	Straight	51-500-90-07

*Activation arms see page 8-11*

Transport distraction of the condylar head represents an interesting therapeutic option for the surgical correction of mandibular joint ankylosis and improvement of oral opening.

An L-type posterior ramus osteotomy provides for targeted mobility to the condyle and enables isolated osteogenesis of the respective bone structures. The distractor has a completely symmetrical design and therefore can be used on both sides.

The two different posterior fixation plates provided ensure maximum intraoperative flexibility.

Thanks to the availability and modular use of activators from the Zurich II product line (see page 8-11), together with the two alternative posterior attachments provided, the surgeon can respond flexibly and individually to any anatomical challenge.

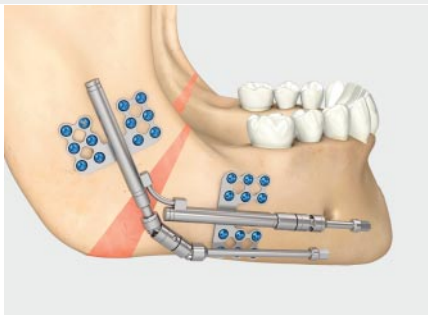
A special retention plate (51-422-12-09) is optionally available for increased patient convenience during the consolidation phase.

The distractor is detached from the posterior plate and removed. The retention plate is then attached from the front (caudally) and firmly locked in place. The posterior plate remains firmly connected to the condyle at any time.

## Mandibular Distraction



Zurich Wood Distractor  
1:1 scale



Zurich Wood distractors require only one osteotomy line to be performed in the mandibular angle.

Mandibular micrognathias frequently affect both the mandibular body and the ascending ramus. Bidirectional distractors offer surgeons an opportunity to treat both sectors in a targeted but independent way.


As opinions differ with regard to the question whether single or double osteotomy is indicated in the mandibular angle, the KLS Martin range of distractors offers solutions that satisfy the demands of both parties.

Zurich Wood distractors are a combination of two Zurich distractors. Their design reflects a very frequent type of mandibular micrognathias and asymmetries in which both the mandibular body and the ascending ramus are affected.


However, the entire range of activators contained in the Zurich modular distractor line can be used in addition to supplement or modify the two activators as required.

Zurich Wood distractors require only one osteotomy line to be performed in the mandibular angle region.

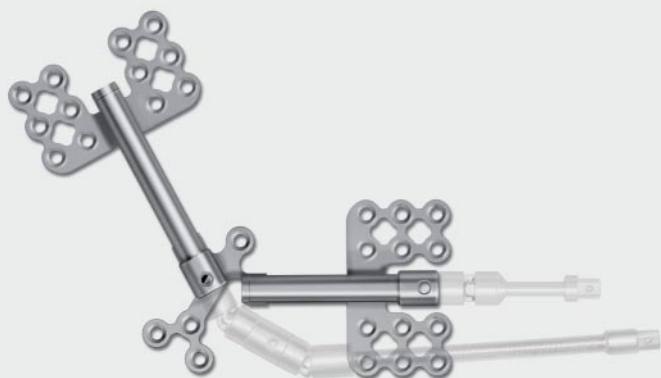
### Zurich Wood Distractors

	Distractors w/o activation arms	
		Item No.
	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

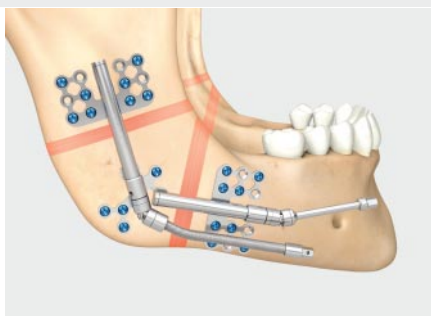
**Activation arms see page 8-11**

	1 turn = 0.5 mm distraction length Recommended patient screwdrivers:	
	straight	51-500-90-07






Zurich Mandibular Distractor  
1:1 scale




Distractor fitted to the mandible.  
The two osteotomies are marked.

By means of a double osteotomy, the gonial angle will be clearly identified and formed. Individual bone formation of both, the ascending ramus and the mandibular body are guaranteed applying the two different activation spindles.

### Zurich Mandibular Distractors

	Distractors w/o activation arms	Item No.
	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

**Activation arms see page 8-11**

	1 turn = 0.5 mm distraction length Recommended patient screwdrivers:	
	Straight	51-500-90-07

## Useful tips

- Select the appropriate device and activation arm. A stereolithographic (STL) model may be very helpful to determine the exact anatomical conditions and to select the right distractor. Specific STL models, based on your CT scan, can be ordered at KLS Martin Group.
- Make a mucosal or extra-oral incision. Then elevate the periosteum to give good access. Place the distractor in the desired position and mark the osteotomy site.
- Applying the activation arm measuring device 51-400-04-07 the accurate length of the activation arm can be determined. The distractor can be adjusted using the cutting plier 51-400-02-07.
- A firm anchorage according to the desired distraction vector applying at least three 1.0- or 1.5-mm micro screws on each side of the osteotomy line is recommended.
- Bend the micro plates as necessary to ensure good bone contact establishing a stable distraction vector. Caution: Take extreme care to protect the welding zone during bending procedure. Place one plate bender 25-486-13-07 next to the weld and use the other bender to modify the plate.
- The KLS Martin measuring device 51-400-04-07 is a good tool to confirm the distraction vector and the length of the activator. If performing bilateral distraction, ensure that both vectors are parallel to each other.
- Remove the device and perform a complete osteotomy taking care about the anatomical situation of the alveolar nerve. Then refix the distractor with 1.5- mm micro screws, 4 to 7 mm in length.
- Connect the selected activation arm to the distraction device. This can also be done prior to the surgery. Caution: Take care to ensure that the ball on the arm interlocks with the distractor body.
- Confirm device function intra-operatively by activating the device. Then return to starting position and suture the wound.



Removal procedure for  
standard activation arms  
(see page 8)

### Latency Phase

- A latency phase of 3-7 days is recommended, based on patient's age, health status, and surgeon's treatment plan.
- After the desired latency period, distraction begins at a standard rate of 1 mm per day (usually 2 turns of 360°).

### Activation arm removal of conventional activators (page 8-11)

- Activation arm can be removed after completion of distraction phase. This can be done in the O.R. or the office, depending on the access.
- Expose the activator and by using the forceps 51-400-01-07, depress the ball at the base of the activation arm and pull off the activation arm.

### Distraction Device Removal

Remove distractor according to the surgical treatment protocol, approximately 8-12 weeks, based on patient's age, actual lengthening and any other therapeutic considerations.

### **Please note:**

*This brochure does not replace the user manual.  
The instructions will accompany the product  
and must be considered before use.*

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

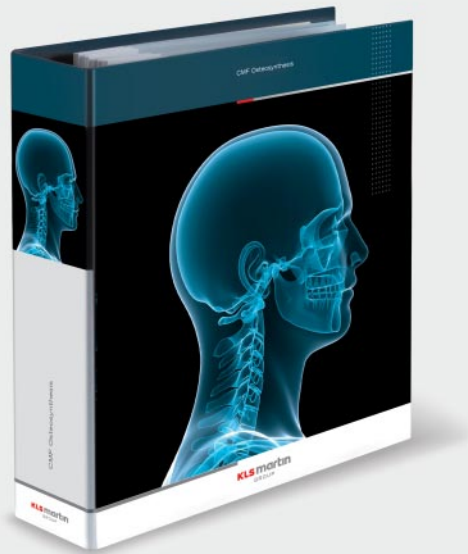
KLS Martin is a pioneering company in distraction osteogenesis and has established in many individual indications its own specific product portfolio.

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.

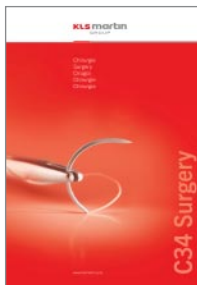
You should also get to know SonicWeld Rx®: It is worldwide patented the only resorbable osteosynthesis program, which is entirely based on ultrasound technology to weld in resorbable pins.

Resorbable osteosynthesis can just be so easy!

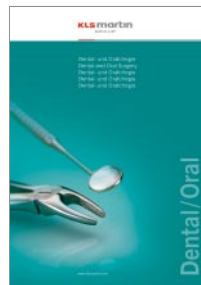
**Of course you can also get in touch with us personally – via e-mail:  
[info@klsmartin.com](mailto:info@klsmartin.com) or via our customer hotline: +49/7461-706-0**



Folder System  
CMF Osteosynthesis



General Catalog



Dental Catalog



Distraction Devices  
Overview



Patient Leaflet for  
details  
(available in German  
and English)



Alveolar Ridge Distraction



SonicWeld Rx® Catalog  
Basics –  
The Perfect Choice!



SonicWeld Rx®  
Surgical Techniques  
and Product Range



SonicWeld Rx® CD-ROM

## KLS Martin Group

### **KLS Martin Australia Pty Ltd.**

Sydney · Australia  
Tel. +61 2 9439 5316  
australia@klsmartin.com

### **KLS Martin India Pvt Ltd.**

Chennai · India  
Tel. +91 44 66 442 300  
india@klsmartin.com

### **Martin Nederland/Marned B.V.**

Huizen · The Netherlands  
Tel. +31 35 523 45 38  
nederland@klsmartin.com

### **KLS Martin LP**

Jacksonville · Florida, USA  
Tel. +1 904 641 77 46  
usa@klsmartin.com

### **KLS Martin do Brasil Ltda.**

São Paulo · Brazil  
Tel. +55 11 3554 2299  
brazil@klsmartin.com

### **Martin Italia S.r.l.**

Milan · Italy  
Tel. +39 039 605 67 31  
italia@klsmartin.com

### **Gebrüder Martin GmbH & Co. KG**

Moscow · Russia  
Tel. +7 499 792-76-19  
russia@klsmartin.com

### **Gebrüder Martin GmbH & Co. KG**

Shanghai · China  
Tel. +86 21 5820 6251  
china@klsmartin.com

### **Nippon Martin K.K.**

Tokyo · Japan  
Tel. +81 3 3814 1431  
nippon@klsmartin.com

### **Gebrüder Martin GmbH & Co. KG**

Dubai · United Arab Emirates  
Tel. +971 4 454 16 55  
middleeast@klsmartin.com

### **KLS Martin France SARL**

Mulhouse · France  
Tel. +33 3 8951 3150  
france@klsmartin.com

### **KLS Martin SE Asia Sdn. Bhd.**

Penang · Malaysia  
Tel. +604 505 7838  
malaysia@klsmartin.com

### **KLS Martin UK Ltd.**

London · United Kingdom  
Tel. +44 1189 000 570  
uk@klsmartin.com

### **Gebrüder Martin GmbH & Co. KG**

#### **A company of the KLS Martin Group**

KLS Martin Platz 1 · 78532 Tuttlingen · Germany  
P.O. Box 60 · 78501 Tuttlingen · Germany  
Tel. +49 7461 706-0 · Fax +49 7461 706-193  
info@klsmartin.com · www.klsmartin.com

