

LEONEAMERICA'S
ORTHONEWS

ATI

MED/CERT
ISO 13485:2003A NEW DEVICE FOR CALIBRATED
MAXILLARY EXPANSION:**THE NI-TI MEMORIA® LEAF
SPRING ACTIVATED EXPANDER**Alessandro Gianolio*, Claudio Lanteri**,
Valentina Lanteri*, Claudia Cherchi*

* Private practice

** Past President, Italian Orthodontic Society

The posterior crossbite is the most common transversal malocclusion and is generally accompanied by crowding of the upper arch. (Harvold et al. 1972; Bishara and Staley 1987). The devices used for this purpose, in addition to increasing transverse diameters, produce an increase of length of the arch. (Adkins et al. 1990).

Many authors have described apparatus for maxillary expansion with different requirements for technical characteristics. The effect of the expansion of the dental arch on the palatine bases decreases with increasing age, in relation to the increase of the rigidity of the facial skeleton. When implementing a treatment of orthopedic maxillary expansion, the objective is to obtain minimal dental effects with the maximum skeletal effect (Haas 1961).

It was also shown that slow maxillary expansion can have orthopedic effects in growing individuals (Cotton 1978, Hicks 1978, Bell and Le Compte 1981 Mossaz 1989). In 2013, based on the experience acquired by the operators, Leone® introduced a radical change to the spring-activated expander, which led to the elimination of the coil spring and was replaced by a new active element; The Ni-Ti Memoria Leaf Spring-Activated Expander (MLSAE).

SEE PAGES 2-9

MEMORIA® LEAF SPRING activated expander

Since 1935



Memoria® Leaf Spring Activated Expander is an evolution in design from the spring-loaded expander. Its small size body and two Nickel Titanium Memoria® leaf springs allow the release of calibrated and continuous forces to promote dental expansion of the maxillary arch. Re-loading is needed when the two opposing leaf springs move apart. The intraoral activation will put the springs in contact again allowing release of a chosen force, 500 g. or 800 g.

SEE PAGE 12

**FREE EXPANSOR
POSTERS**
CALL FOR YOUR SET
800-235-4639



MEMORIA® Leaf Spring Activated Expander

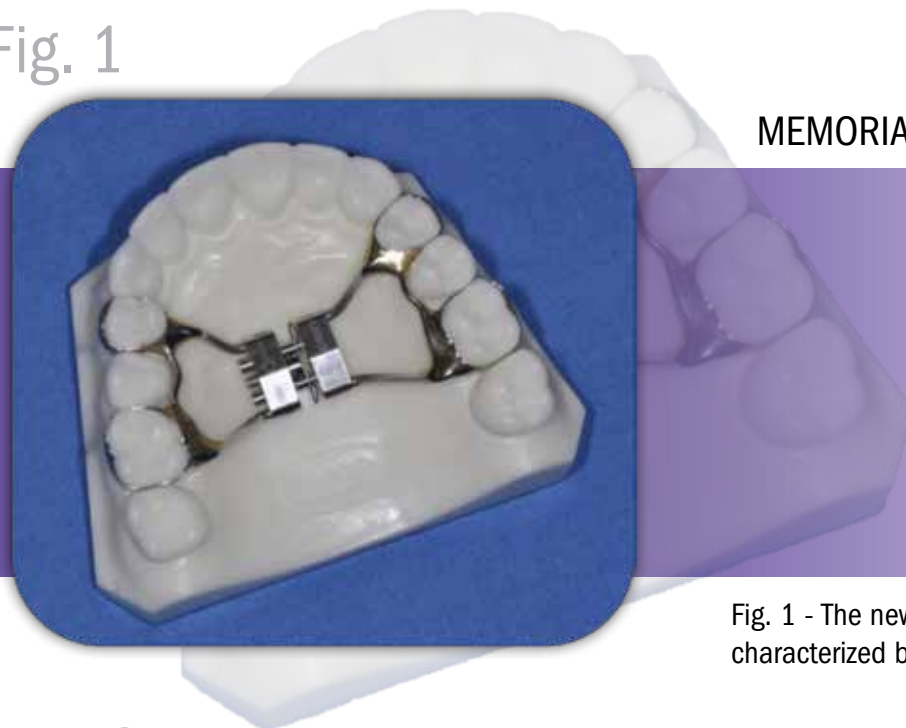
The structure has remained quite similar to that of an RPE expander, but in this case the screw activation compresses a double leaf spring in Ni-Ti which, during deactivation recovers its size, leading to a calibrated expansion of the upper arch (Fig. 1).

Two types of leaf springs are currently commercially available, the Light 500 gram. and Medium 800 gram. The size of the body of the screw is 11x12x4 mm., so reduced and also adaptable to critical conditions such as very narrow palates or arches with transverse deficiency.

To adapt to different clinical contingencies, there is a choice between two devices:

1. In the first type there are two leaf springs and they have an expansion of up to 6 mm. while around the central screw is 0.4 mm. As the holes are positioned at each quarter turn, each activation of the screw determines an expansion of 0.1 mm. Performing therefore 8-10 activations per month in a single solution, reaching the maximum number of activations, equal to 35 activations (Fig. 2);

Fig. 1



MEMORIA® Leaf Spring Activated Expander

Fig. 1 - The new type of Calibrated Expander, characterized by the double leaf Ni-Ti spring

Fig. 2









	 11 mm	 4 mm	 arms	 body		 activation turns for maximum expansion limit	
 A2703-06 light spring 500 g approx			1,5 mm	12 mm	6 mm	0,4 mm	35
 A2704-06 medium spring 800 g approx							

Fig. 2 - Features of screw with double leaf spring

2. The second type is characterized by the presence of three leaf springs that allow to obtain an expansion of 10 mm and the achievement of a maximum of 50 activations. Also in this case the forces can be expressed by 500 (Light) or 800 grams. (Medium) (Fig. 3).

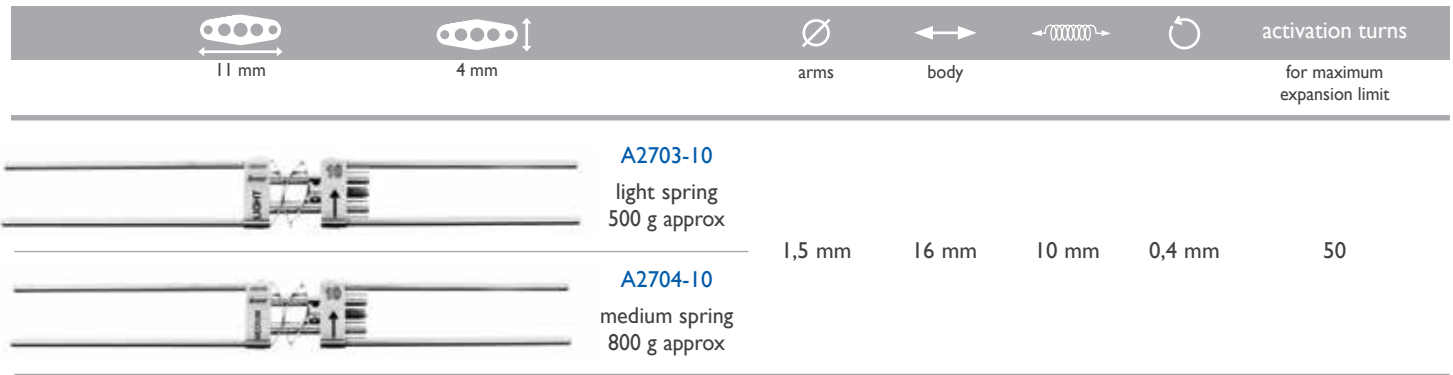


Fig. 3

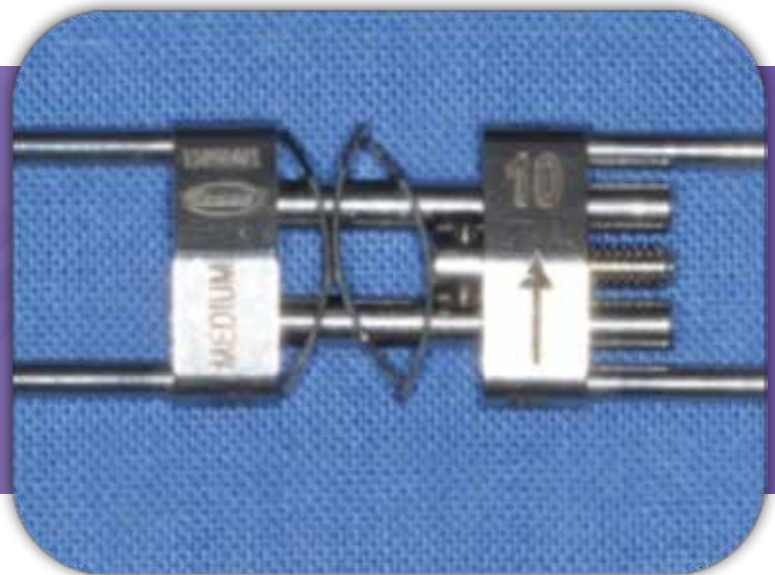


Fig. 3 - Screw with triple leaf medium spring, Approximately 800g

TWO IN ONE

The MLSAE can also be used for carrying out the rapid expansion of the palatine suture. In this case changing the management of activations to determine the diastase, the screw must be activated leading to full compression of the active element (leaf spring). Additional device activations involve direct action of

the screw, with production of orthopedic forces. In case of failure of the suture diastasis in borderline subjects by age, the deactivation of the screw will bring back the spring in the range of action of the light forces, restoring the function of calibrated expansion.

CASE REPORT 1

The patient (9 years, male) was presented to our observation for the presence of right unilateral cross bite, correctly diagnosed by the pediatrician.

The usual process of clinical evaluation and documentation (Study models, photos intra and extra oral, Orthopantomography and TeleRx LL) (Fig. 4-5) led to the diagnosis of:

- skeletal and dental Class I in normofacial subject
- early mixed dentition
- right unilateral crossbite due to transverse maxillary deficiency
- right mandibular shift with secondary ipsilateral deviation of the midline
- light crowding of upper lateral incisors

Fig. 4



Fig.4 - Nine years, male - Initial photos

Fig. 5



S.N / A	82° +/- 3,5°	78°
S.N / Pg	82° +/- 3,5°	76°
A.N / Pg	2° +/- 2,5	2°
S.N / ANS.PNS	8° +/- 3,0°	7°
S.N / Go.Gn	33° +/- 2,5	32°
ANS.PNS / Go.Gn	25° +/- 6	25°
+1 / ANS.PNS	110° +/- 6,0	109°
-1 / Go.GN	94° +/- 7°	96°
-1 / A.Pg (mm)	2 +/- 2 mm	1.5 mm
OVJ	3,5 +/- 2,5 mm	2 mm
OVB	3,5 +/- 2,5mm	2 mm
+1/-1	132° +/- 6,0°	129°

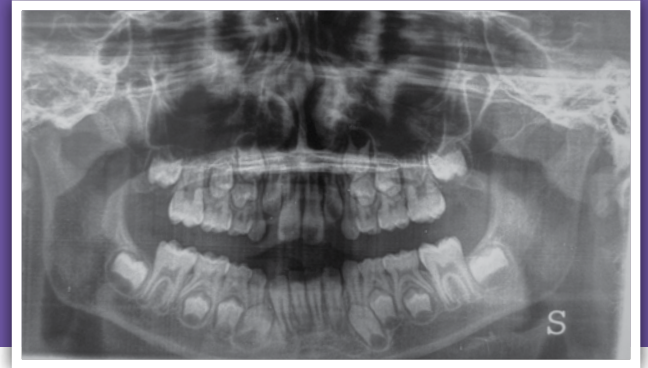


Fig. 5 - Initial Orthopantomography, Lateral-Lateral cephalometric.

The goals of treatment are:

- expansion of the maxilla for correction of unilateral crossbite
- normalization of overjet and overbite
- alignment of the midlines
- correction of the form and function of the arches

The prognosis in similar cases is good, especially when you consider that no collaboration is required. Routinely patient compliance is good, given the absolute absence of pain. For the treatment we have chosen the new MLSAE with double leaf spring in Ni-Ti and light force of 500 grams (Fig. 6).

Fig. 6

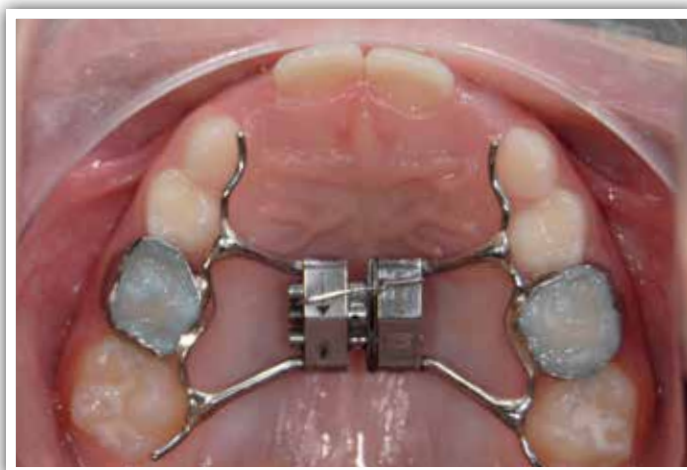


Fig. 6 - Expansion plan: The MLSEA is delivered from the lab already pre-activated with a metal ligature that holds the screw together. The metal ligature is removed to allow the beginning of the expansion.

MEMORIA® Leaf Spring Activated Expander

At the clinical control after a month, we observed the increase of the expansion between the two leaves of the spring. We therefore performed 8 activations to allow an approximation of the same and the start of a new expansion. This operation was repeated monthly, reaching a total of 32 activations (Fig. 7).

Fig. 7

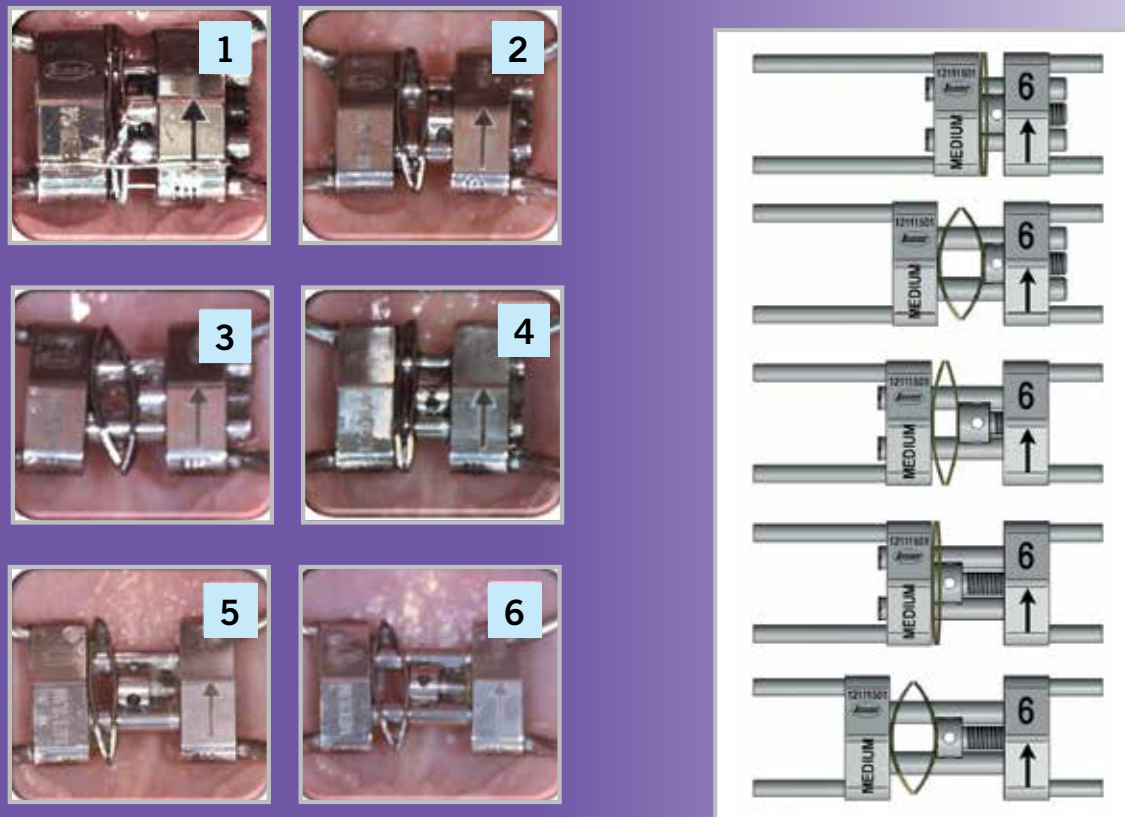


Fig. 7 - Sequence of expansion and activation:

- 1 - MLSAE with ligation locking
- 2 - expansion after 1 month
- 3 - reactivation performed in the same session
- 4 - expansion at 3 months
- 5 - reactivation of the spring
- 6 - expansion after 4 months

At the end of the expansion an occlusal radiograph was taken which clearly shows bone remodeling, which occurred at the level of the median suture of the palate (Fig. 8).

Fig. 8



Fig. 8 – Occlusal Rx at the end of expansion. The suture diastasis has not been verified, typical of orthopedic expansion but bone remodeling is observed, which occurred at the level of the median suture of the palate, and characterizes slow expansion.

MEMORIA® Leaf Spring Activated Expander

After 4 months from the start of the expansion the crossbite was corrected and we expect stabilization with the appliance in place. Waiting for a further three months allowed us to appreciate clinically the eruption of the upper lateral incisors, the centering of the midlines and the harmonization of the form and function of the arches. The achievement of objectives (Fig. 9), and the cephalometric analysis and radiographic feedback confirm the clinical results (Fig. 10).

Fig. 9

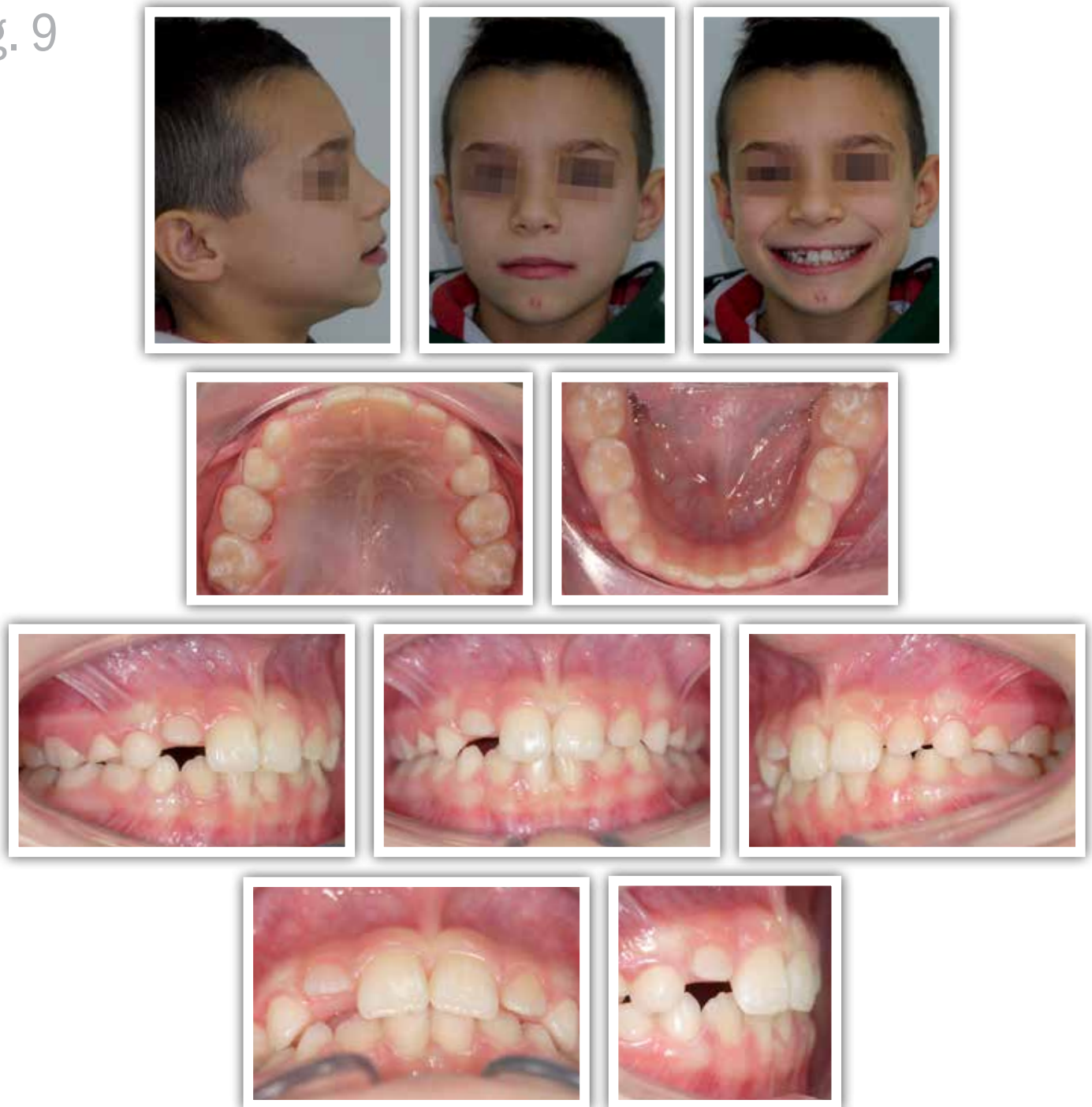


Fig. 9 - Nine years, male - Final photos

Fig. 10

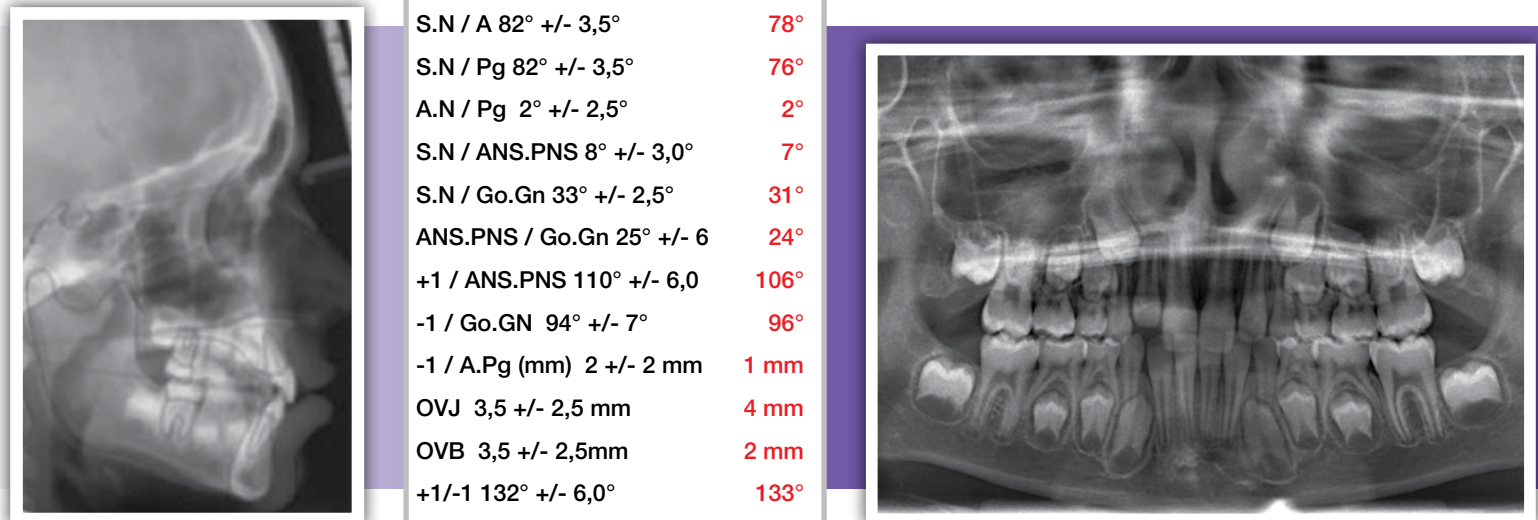


Fig. 10 - Final Orthopantomography, Lateral-Lateral cephalometric

The results prove the effectiveness, efficiency and ease of use of the calibrated expander, in the correction of a transverse maxillary deficiency in a growing patient.

The advantages of this equipment mainly consist of:

- ease of activation
- visual inspection of the activation
- safe handling
- compliance by the patient
- mainly body movement of teeth
- predetermined forces, light and constant
- predictability of results

The effects are clinically and radiographically similar to those reached by the RPE. Therefore, the Memoria Leaf Spring Activated Expander is an excellent alternative to the RPE in certain conditions. ♦

MEMORIA® Leaf Spring Activated Expander

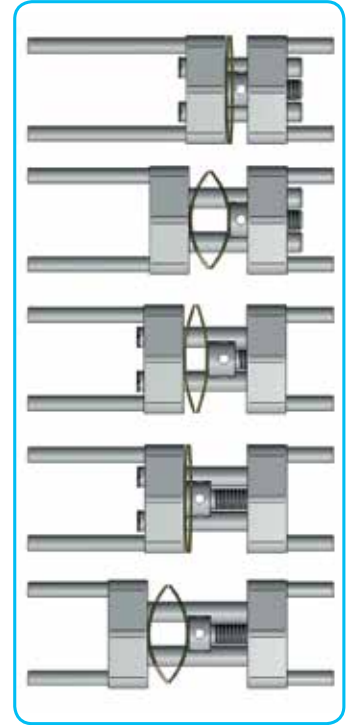


Key with safety ring leash included in the package

MEMORIA® LEAF SPRING ACTIVATED EXPANDER

This device is an evolution in the design of the previous spring-loaded expander, designed with technical and scientific collaboration of Dr. Claudio Lanteri and Mr. Filippo Francolini. This new expander features a small size body, and it is equipped with two Nickel Titanium **MEMORIA**® leaf springs allowing the release of calibrated and continuous forces to promote the dental expansion of the maxillary arch. Re-loading is needed when the two opposing leaf springs move apart: the intraoral activation will put the springs in contact again allowing the release of the chosen force.

The expander is available in two models releasing either 500 g or 800 g
Packs of 1



	11 mm	4 mm	arms	body		activation turns for maximum expansion limit	
A2703-06 light spring 500 g approx			1,5 mm	12 mm	6 mm	0,4 mm	35
A2704-06 medium spring 800 g approx							
A2703-10 light spring 500 g approx			1,5 mm	16 mm	10 mm	0,4 mm	50
A2704-10 medium spring 800 g approx							



Since 1935

SIMPLICITY OF CONSTRUCTION AND APPLICATION

The orthodontic treatment requires more and more practical solutions to therapeutic problems. The orthodontist can make use of this screw range, designed with the assistance of the long-lasting clinical experience of Prof. Nicola Veltri, to have any biomechanical movements be induced like **DISTALIZATION, MESIALIZATION, EXPANSION and MONO OR BILATERAL ROTATIONS.**

BABY R.P.E. EXPANSION SCREW 2 Arms

THE SMALLEST SCREW IN THE WORLD



START OF TREATMENT



END OF TREATMENT

BABY R.P.E. EXPANSION SCREW 4 Arms



START OF TREATMENT



END OF TREATMENT

BABY R.P.E. EXPANSION SCREWS

(Patented)

Rapid palatal expanders with 2 or 4 arms. Both screws feature one guide only and expansion capacity up to 11 mm.

Packs of 1
Key with safety
leash included.



6 mm	4.5 mm	arms 1.5 mm	body	11	0.8 mm	activation turns for maximum expansion limit
			16 mm	11	0.8 mm	50
			16 mm	11	0.8 mm	50

Multifunctional Orthodontic Screws



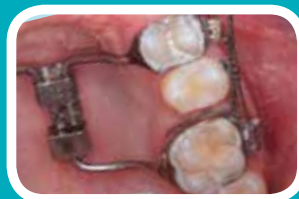
MULTIFUNCTIONAL SCREW 4 Arms



MULTIFUNCTIONAL SCREW 3 Arms



START OF TREATMENT



AFTER 8 WEEKS

Clinical photos courtesy of Prof. Nicolò Vettori

MULTIFUNCTIONAL SCREWS

(Patented)

Intended for unilateral distalization of upper molars only. Available with 3 or 4 arms. Featuring one guide only and expansion capacity up to 11 mm.

Packs of 1
Key with safety ring
leash included.



6 mm	4.5 mm	arms 1.5 mm	body		activation turns for maximum expansion limit
		A3626-II	16	11	0,8 mm 50
		A3628-II R	16	11	0,8 mm 50
		A3629-II L	16	11	0,8 mm 50

Stealth Expansor® Screw Series 621



stealth®

EXPANSOR® SCREW SERIES 621

Strong, Slender, an easy fit to get the job done!

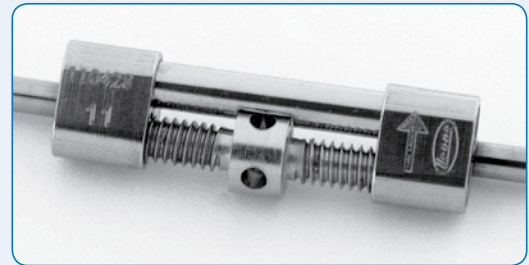


Actual Size

Form-follows-function, introducing the new Leone mini-expansor screw. The new Stealth™ Slender Expansor® Screw is very compact with design innovations that make it ideal for smaller palates where application size and versatility are top priorities. Competing products simply do not measure up; they tend to be larger with more cumbersome mechanics and inferior construction techniques that become plaque traps. The Stealth™ Slender Expansor® Screw is a superior product with these many advanced features:

- Very compact and strong mechanism, body bulk is minimized
- No external weld marks, will not be a plaque collector.
- Arms are internally attached to resist stress point breakage.
- Internal mechanism absolutely reliable for stability and precision
- Available in two sizes, one size does not fit all.
- Extra long arms to easily form appliances without soldered extensions.
- Packaged with the new Leone Swivel Smart Key™.
- Superior Leone materials and workmanship.
- Dual Directional Arrows for optimum placement.

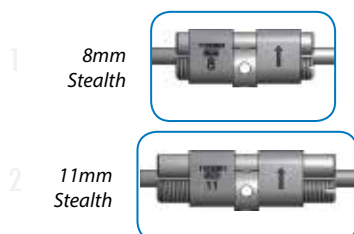
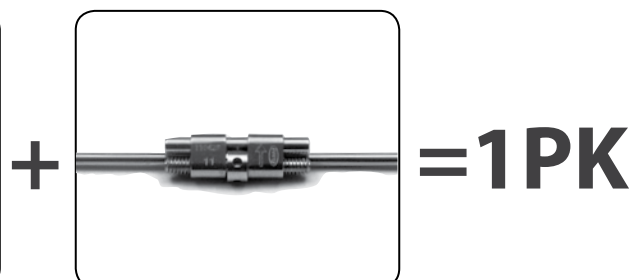
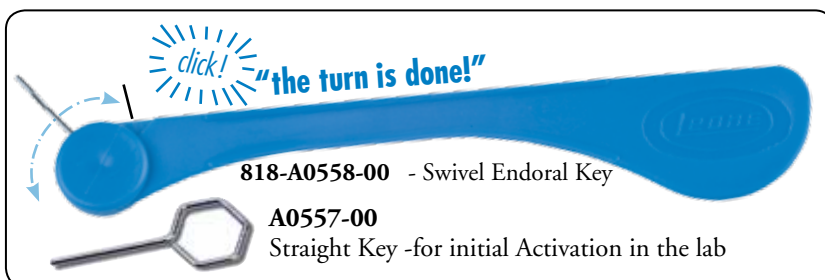
* U.S. Trademark of American Tooth Industries



Available in 2 Sizes:
8 & 11 MM

	arms mm	body mm	mm	arms length	activation turns for maximum expansion
8 MM	1.5 MM	12.5 MM	8 MM	68 MM	35 MM
11 MM	1.5 MM	16 MM	11 MM	68 MM	50 MM

The included Smart Key™ features activation detection. Once the proper revolution of the key has been completed, the gentle clicking movement indicates the turn is complete. It's so simple even parents can do it.



GROUP/ITEM #
818/A0621-08

DESCRIPTION
1pk Stealth Expansor® Screw 8mm-with Swivel Key and Lab Activation Key

818/A0621-11

1pk Stealth Expansor® Screw 11mm-with Swivel Key and Lab Activation Key



M3052-00
MINI LIP BUMPER -
PROFESSOR NICOLA VELTRI

Designed by Prof. Nicola Veltri: this device is intended for use on patients with deciduous or mixed dentition with lack of space and / or small jaw with either sagittal or transversal dimension. The early application on deciduous molars positively stimulates the development of the mandible. The mini lip bumper is made with a special inclination of the archwire so as the anterior shield is positioned in the area where the lip is highly pushed forward and has a stop adjustable screw that makes a precise activation possible without the need of bending the wire. The adjustment of the stop requires the screwdriver P1520-00.

Pack of 5

LeoneAmerica National Sales Representatives



Kory Carman



Robin Crist



Joe Castelli



Doug Owen



John Maltby



(805) 487-9868

Fax: (805) 483-8482

Email: Leoneamerica@americantooth.com

www.AmericanTooth.com

LEONEAMERICA'S ORTHONEWS CONTRIBUTORS



Emilio Pozzi
 President - LeoneAmerica
A Div. of American Tooth Industries



Kory Carman
 Assistant Editor



Robin Crist
 Assistant Editor



Amy Lyons
 Distribution



Honeyleth Abdon
 Distribution

**CALL 800-235-4639 FOR
 SPECIAL PRICING
 AND DETAILS OF
 CURRENT AVAILABLE
 PROMOTIONS**

IMPORTANT DISCLOSURE: ©2015. All rights reserved. No part of this brochure may be reproduced without written permission from American Tooth Industries.



PRSRST STD
MAIL
U.S. POSTAGE
PAID
OXNARD, CA
PERMIT NO. 539

Orthodontic Division
of American Tooth Industries
www.AmericanTooth.com

Headquarters:
1200 Stellar Drive
Oxnard, CA 93033-2404

LEONEAMERICA'S ORTHO NEWS

\$1.50

**VISIT US AT THE AMERICAN
ASSOCIATION OF ORTHODONTISTS
2015 WINTER CONFERENCE
FEB 06 - 08, 2015 - BOOTH #402**
www.aaoinfo.org

2015 WINTER CONFERENCE MIAMI, FLORIDA

Visit us
at the AAO
Booth
#402



**LAB DAY Chicago 2015
Feb 27-28 • Chicago, IL**

www.lmtmag.com/lmtlabday