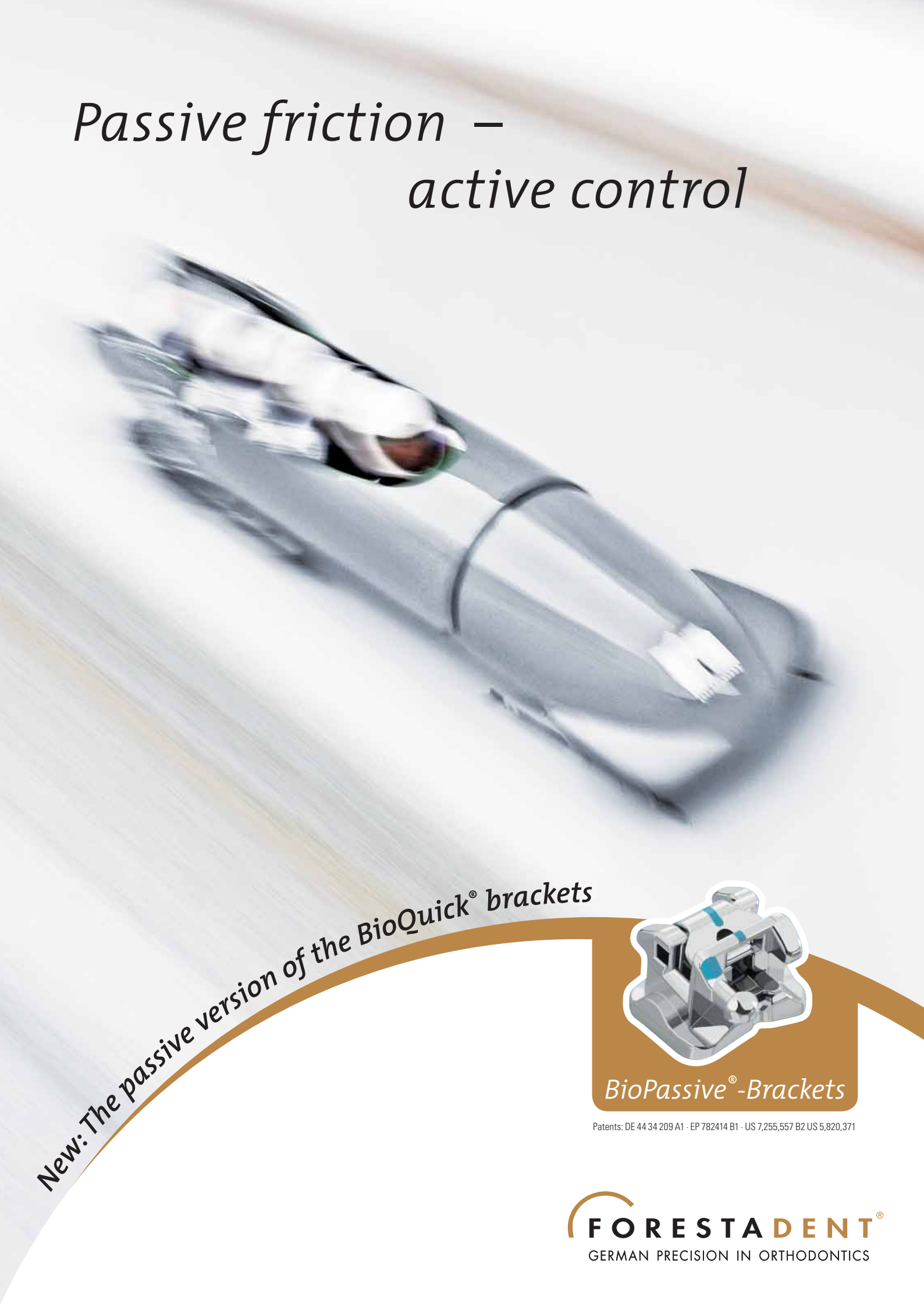
Passive friction – active control



New: The passive version of the BioQuick® brackets

BioPassive®-Brackets

Patents: DE 44 34 209 A1 · EP 782414 B1 · US 7,255,557 B2 US 5,820,371

FORESTADENT®

GERMAN PRECISION IN ORTHODONTICS

active = BioQuick®

passive = BioPassive®

❶ *Snap function on the clip and bracket makes it easier to open the clip from the gingival.*

❷ *Optimised, anatomically adapted base prevents "rocking" of the bracket when it is pressed on the tooth.*

BioPassive®-Brackets

The passive version of the popular BioQuick® brackets. Minimal friction – active control during handling.

Bobsleighing relies on speed, minimal friction and absolute control in order to achieve a good placing. Often the decision is made in the push-start phase. The same applies to orthodontic treatment. Tooth correction should already be achieved in the levelling phase as quickly as possible using gentle forces and minimal friction. This can be optimally realised with the new self-ligating BioPassive® bracket.

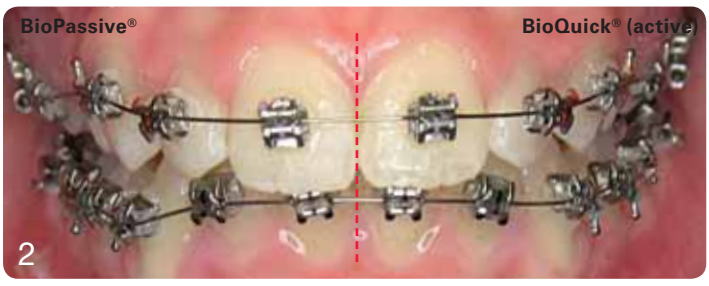
The BioPassive® bracket is the passive version of the proven self-ligating BioQuick® metal brackets from FORESTADENT. The slot of the BioPassive® bracket has been set deeper compared with the active BioQuick® brackets. This enlargement of the slot provides greater clearance for the archwire, which also greatly reduces the friction of the archwire in the slot. The passive bracket design in combination with the flexible clip enables effective therapeutic progress during the initial phase of alignment. This allows attention to be focussed more quickly on the real problem (e. g. diastema closure).

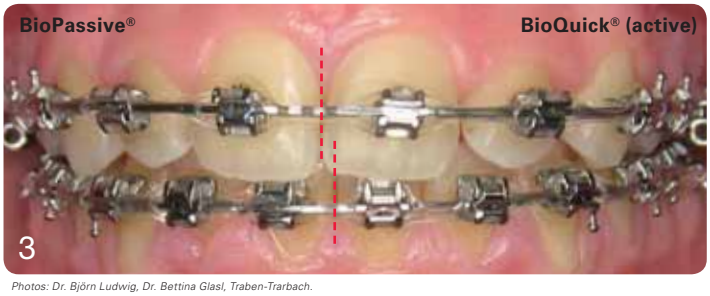
Numerous application options

The strength of the BioPassive® brackets is when they are used in combination with the active BioQuick® brackets, similar to the principles of the segmented technique. This can be used for quicker treatment of overcrowding with midline displacement, a single diastema closure of molars or even bimaxillary protrusion involving extraction of the premolars etc.

With diastema closure using large archwires, the greater clearance of the archwire in the passive slot is more beneficial than active brackets that have less clearance in the slot. This produces more rapid diastema closure, as the illustrated treatment example shows. In this case, which involved symmetrical premolar extraction, diastema closure was completed on the right using BioPassive® brackets and on the left using active BioQuick® brackets.

The original correct midline (Fig. 1 and 2) displaces during and after diastema closure to the side treated passively (patient right, Fig. 3 and 4). Displacement due to quicker diastema closure using





Photos: Dr. Björn Ludwig, Dr. Bettina Glasl, Traben-Trarbach.

BioPassive® can be clearly seen on the photograph in comparison with active BioQuick® brackets. Externally the passive brackets are differentiated from the active brackets by a vertical mark on the mesial ligature wing.

active BioQuick® *BioPassive®*

Flexible clip for active control

The clip is identical to the clip of the active BioQuick® brackets. It is flexible and aids the orthodontist during treatment. With extreme tooth movements, e.g. rotation, a reduced dimension archwire will also lie against the clip in the passive slot. The flexible clip actively supports tooth movement in this case. The clip is passive with archwires up to slot-filling dimensions of 0.018"x 0.025" (18 Slot) and 0.022"x 0.025" (22 Slot). The use of archwires that virtually fill the slot, e.g. the BioFinisher® archwire, is recommended for fine adjustment. This effectively transfers the preset values without impeding the physical tooth movement.

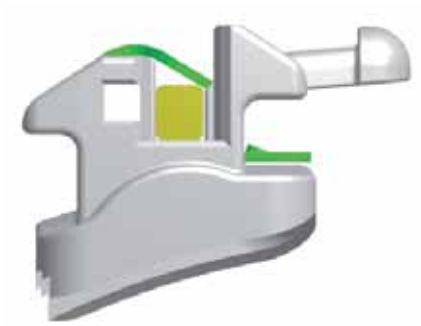
The clip is opened gingivally using a probe. With the aid of the snap function a notch on the pad margin guides the probe automatically to the clip. This enables the clip to be opened more easily and it is then closed in the usual way by applying gentle finger pressure.

We recommend using thumb support on the gingival edge to control the force and movement for opening the clip.

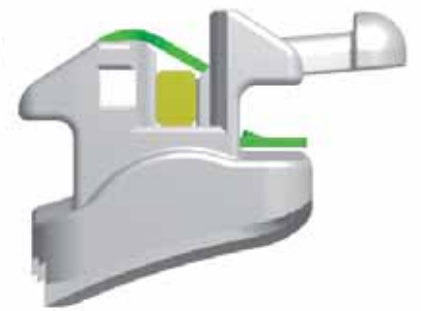
Force from the base

The base of the BioPassive® brackets is identical to the newly developed base of the 3rd generation of active BioQuick® brackets. During years of detailed work by engineers of FORESTADENT around 4,000 teeth from all over the world were recorded using the 3D laser scan technique and their natural curvatures examined. Based on this study*, which was conceived in collaboration with Dr. Björn Ludwig, we have now successfully developed a new bracket base adapted to the biological situation. This anatomically contoured base adapts perfectly to the shape of the tooth crown and ensures reliable positioning of the bracket. Any "rocking" of the bracket when it is pressed onto the tooth is therefore prevented from the outset. This is supported by the angled shape of the BioPassive® brackets and their colour coding. A new circumferential pad margin also prevents any adhesive flowing into the locking mechanism.

Hook-style undercuts on the patented bracket base provide up to 30% greater bond strength than brackets with a mesh base. In addition, a significantly higher proportion of adhesive remains on the base and not on the tooth when debonding the bracket.



Slot .022": archwire .0215" x .025", (slot filled) passive clip



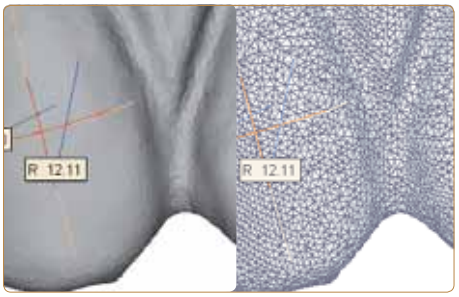
Slot .018": archwire .018" x .025", (slot filled) passive clip

*Björn Ludwig Traben-Trarbach/University Homburg/Saar, Germany et al.: Self-ligating bracket concept and treatment, Chapter 2.

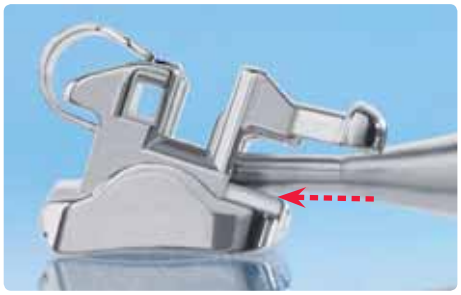
To open the clip easily, slide the probe along at the pad margin until it engages in the notch.

Data acquisition using a 3D laser scan.

The notch on the pad margin automatically guides the probe to the clip.



The crown of each tooth is represented using approx. 5,000 – 10,000 data points. This method allows the curvature to be precisely ascertained.



The clip can now be easily opened occlusally by applying light pressure.

Hook-style undercuts on the patented bracket base provide up to 30% greater bond strength.

Minimal friction ensures quick success

Well-rounded bracket and slot edges as well as contact ribs in the bracket slot ensure controlled force transfer with minimal friction. BioPassive® brackets display their full potential particularly in clinical situations with pronounced vertical archwire deflection, e.g. in the case of displaced canines.

Binding and notching, which often occurs with conventional brackets, is prevented with BioPassive® by four contact ribs in the slot.

Four contact ribs in the bracket slot ensure controlled force transfer with minimal friction (no binding and notching).

As the archwire only rests on two contact points, it has greater clearance and therefore ensures friction-free sliding. This in turn accelerates integration of the canines. We recommend using thermoactive BioArchwires from FORESTADENT in order to utilise optimally the friction-free characteristics of BioPassive® brackets. Their uniquely smooth surface reduces the friction between archwire and bracket by up to 30%, which ensures that the entire treatment is completed not only more gently but also more quickly.

Auxiliary units are easily and simply placed using the separate .016"x.016" auxiliary slot.

Photos: Practice Dres. Ludwig and Glasl, Traben-Trarbach.

Numerous combination options

The additional slot (0.016"x0.016") of the BioPassive® brackets considerably extend treatment options. The slot allows placement of diverse springs for uprighting molars, derotation and intrusion/extrusion. It also makes it possible to combine treatment with the OrthoEasy® pin system.

The new BioPassive® molar bracket provides much more free space

The molar bracket of the BioPassive® system offers enormous advantages when changing the archwire. Awkward threading of the archwires into standard molar tubes is no longer required. Distal bending of the archwire can now be completed extraorally. The design of the BioPassive® molar brackets is the same as that of the anterior BioPassive® brackets. The archwires are placed easily in the bracket slot when the clip is open and are ligated by simply pressing the clip. The orthodontist can choose between three versions of the

The clip of the BioPassive® molar bracket offers a significant advantage in comparison with closed round tubes.

BioPassive® molar brackets: with the familiar hook-style base or welded onto easily customised Big Foot adhesive pads or molar bands.

Three versions of molar brackets: with familiar hook-style base, welded onto easily adaptable Big Foot adhesive pads or onto molar bands.

Ordering information

BioPassive® cases

*Roth System**

Slot .018" / 5 – 5			CE 0297
Cases	**1**	**5**	**10**
Brackets	**20**	**100**	**200**
without hook	706P0971	706P0972	706P0973
with hook 3	706P0976	706P0977	706P0978
with hook 3-5	706P0981	706P0982	706P0983

Slot .022" / 5 – 5			CE 0297
Cases	**1**	**5**	**10**
Brackets	**20**	**100**	**200**
without hook	706P0986	706P0987	706P0988
with hook 3	706P0991	706P0992	706P0993
with hook 3-5	706P0996	706P0997	706P0998

*McLaughlin/Bennett/Trevisi-System**

Slot .018" / 5 – 5			CE 0297
Cases	**1**	**5**	**10**
Brackets	**20**	**100**	**200**
without hook	706P0837	706P0838	706P0839
with hook 3	706P0842	706P0843	706P0844
with hook 3-5	706P0847	706P0848	706P0849

Slot .022" / 5 – 5			CE 0297
Cases	**1**	**5**	**10**
Brackets	**20**	**100**	**200**
without hook	706P0852	706P0853	706P0854
with hook 3	706P0857	706P0858	706P0859
with hook 3-5	706P0862	706P0863	706P0864

*The Forestadent version of these prescriptions are not claimed to be a duplication of any other, nor does Forestadent imply that it is endorsed in any way by the doctor.

Ordering information

Slot .018"

Roth System

CE 0297

MAXILLARY

	731P0503	731P0503	731P0303	731P0203	731P0103	730P0103	730P0203	730P0303	730P0503	730P0503
	731P0513	731P0513	731P0313	–	–	–	–	730P0313	730P0513	730P0513
	5	4	3	2	1	1	2	3	4	5
Torque	-7 °	-7 °	-2 °	+8 °	+12 °	+12 °	+8 °	-2 °	-7 °	-7 °
Angulation	0 °	0 °	+11 °	+9 °	+5 °	+5 °	+9 °	+11 °	0 °	0 °
In/Out	0,9	0,9	0,9	1,5	1,0	1,0	1,5	0,9	0,9	0,9
Rotation	2 ° distal	2 ° distal	4 ° mesial					4 ° mesial	2 ° distal	2 ° distal
Torque	-22 °	-17 °	-11°	0 °	0 °	0 °	0 °	-11 °	-17 °	-22 °
Angulation	0 °	0 °	+7 °	0 °	0 °	0 °	0 °	+7 °	0 °	0 °
In/Out	1,2	1,2	1,3	1,6	1,6	1,6	1,6	1,3	1,2	1,2
Rotation	4 ° distal	4 ° distal	2 ° mesial					2 ° mesial	4 ° distal	4 ° distal
	5	4	3	2	1	1	2	3	4	5
	731P1603	731P1503	731P1403	730P1203	730P1203	730P1203	730P1203	730P1403	730P1503	730P1603
	731P1613	731P1513	731P1413	–	–	–	–	730P1413	730P1513	730P1613

MANDIBULAR

Slot .022"

Roth System

CE 0297

MAXILLARY

	731P0501	731P0501	731P0301	731P0201	731P0101	730P0101	730P0201	730P0301	730P0501	730P0501
	731P0511	731P0511	731P0311	–	–	–	–	730P0311	730P0511	730P0511
	5	4	3	2	1	1	2	3	4	5
Torque	-7 °	-7 °	-2 °	+8 °	+12 °	+12 °	+8 °	-2 °	-7 °	-7 °
Angulation	0 °	0 °	+11 °	+9 °	+5 °	+5 °	+9 °	+11 °	0 °	0 °
In/Out	0,9	0,9	0,9	1,5	1,0	1,0	1,5	0,9	0,9	0,9
Rotation	2 ° distal	2 ° distal	4 ° mesial					4 ° mesial	2 ° distal	2 ° distal
Torque	-22 °	-17 °	-11°	0 °	0 °	0 °	0 °	-11°	-17 °	-22 °
Angulation	0 °	0 °	+7 °	0 °	0 °	0 °	0 °	+7 °	0 °	0 °
In/Out	1,2	1,2	1,3	1,6	1,6	1,6	1,6	1,3	1,2	1,2
Rotation	4 ° distal	4 ° distal	2 ° mesial					2 ° mesial	4 ° distal	4 ° distal
	5	4	3	2	1	1	2	3	4	5
	731P1601	731P1501	731P1401	730P1201	730P1201	730P1201	730P1201	730P1401	730P1501	730P1601
	731P1611	731P1511	731P1411	–	–	–	–	730P1411	730P1511	730P1611

MANDIBULAR

Ordering information

Slot .018“

McLaughlin/Bennett/Trevisi System

CE 0297

MAXILLARY

	733P0503	733P0403	733P0303	733P0203	733P0103	732P0103	732P0203	732P0303	732P0403	732P0503
	733P0513	733P0413	733P0313	–	–	–	–	732P0313	732P0413	732P0513
	5	4	3	2	1	1	2	3	4	5
Torque	-7 °	-7 °	-7 °	+10 °	+17 °	+17 °	+10 °	-7 °	-7 °	-7 °
Angulation	0 °	0 °	+8 °	+8 °	+4 °	+4 °	+8 °	+8 °	0 °	0 °
In/Out	1,3	0,9	0,9	1,5	1,1	1,1	1,5	0,9	0,9	1,3
Rotation										
Torque	-17 °	-12 °	-6°	-6 °	-6 °	-6 °	-6 °	-6 °	-12 °	-17 °
Angulation	+2 °	+2 °	+3 °	0 °	0 °	0 °	0 °	+3 °	+2 °	+2 °
In/Out	1,2	1,2	1,3	1,6	1,6	1,6	1,6	1,3	1,2	1,2
Rotation										
	5	4	3	2	1	1	2	3	4	5
	733P1603	733P1503	733P1403	732P1203	732P1203	732P1203	732P1203	732P1403	732P1503	732P1603
	733P1613	733P1513	733P1413	–	–	–	–	732P1413	732P1513	732P1613

MANDIBULAR

Slot .022“

McLaughlin/Bennett/Trevisi System

CE 0297

MAXILLARY

	733P0501	733P0401	733P0301	733P0201	733P0101	732P0101	732P0201	732P0301	732P0401	732P0501
	733P0511	733P0411	733P0311	–	–	–	–	732P0311	732P0411	732P0511
	5	4	3	2	1	1	2	3	4	5
Torque	-7 °	-7 °	-7 °	+10 °	+17 °	+17 °	+10 °	-7 °	-7 °	-7 °
Angulation	0 °	0 °	+8 °	+8 °	+4 °	+4 °	+8 °	+8 °	0 °	0 °
In/Out	1,3	0,9	0,9	1,5	1,1	1,1	1,5	0,9	0,9	1,3
Rotation										
Torque	-17 °	-12 °	-6 °	-6 °	-6 °	-6 °	-6 °	-6 °	-12 °	-17 °
Angulation	+2 °	+2 °	+3 °	0 °	0 °	0 °	0 °	+3 °	+2 °	+2 °
In/Out	1,2	1,2	1,3	1,6	1,6	1,6	1,6	1,3	1,2	1,2
Rotation										
	5	4	3	2	1	1	2	3	4	5
	733P1601	733P1501	733P1401	732P1201	732P1201	732P1201	732P1201	732P1401	732P1501	732P1601
	733P1611	733P1511	733P1411	–	–	–	–	732P1411	732P1511	732P1611

MANDIBULAR

BioPassive® Universal Molar-Brackets

With hook-style base and hook.

Upper / 6 – 7 (10 pcs/pack) CE 0297

Slot	right	left
.018“	731P0713	730P0713
.022“	731P0711	730P0711

Torque -14° Rotation 12°

Lower / 6 – 7 (10 pcs/pack) CE 0297

Slot	right	left
.018“	731P1713	730P1713
.022“	731P1711	730P1711

Torque -20° Rotation 2°

Also available on a pad and for welding onto bands!

Ordering information

BioPassive® + BioQuick® active accessories

Order No.		Content	Description
C501-1842 CE		1	**Quick comfort probe double** for BioQuick® and BioPassive® Brackets
501-0861 CE		1	**Archwire-Director**
760-0071 CE0297		50	**Crimpable Stops**

*BioPassive® + BioQuick® active auxiliaries**

Order No.		Force	Content	Description
307-1009 CE0297		130g	10	**Molar uprighting spring** (.016" x .016" – Stiff) highly resistant, for the auxiliary slot of the BioQuick® and BioPassive® brackets
307-1051 CE0297		90g	5	**Memory levelling spring** (.016" x .016" – Stiff) for the auxiliary slot of the BioQuick® and BioPassive® brackets
307-1052 CE0297		130g	5	**Memory intrusion, extrusion spring** (.016" x .016"– Stiff) for the auxiliary slot of the BioQuick® and BioPassive® brackets
307-1050 CE0297		110g	5	**Memory derotation spring** (.016" x .016" – Stiff) for the auxiliary slot of the BioQuick® and BioPassive® brackets

*in Memory Stiff design

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