

## 2 D Bracket positioning Gauge

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Bracket placement is one of the most important keys to a successful orthodontic treatment outcome as stated by Roth. The need for accurate bracket positioning began after the introduction of the Pre-adjusted Edgewise Appliances (PEA). With the introduction of the PEA brackets, tooth positioning became individualized with all the 3 planes. In order to get the Full expression of a PEA bracket, a precise bracket positioning added to a full size wire would yield a complete expression of the bracket.

Various bracket positioning methods have been devised by various authors and systems. On one hand was the mid point bonding and the other was the prescribed height using the incisal edge as the reference.

Mid point bonding as a guide has various drawbacks. 1. Individual variability of tooth anatomy 2. Manual positioning of each bracket is time consuming 3. Chair time pressure while bonding. All the above factors lead to rebonding or repositioning of brackets at a later date resulting in increased chair time, which leads to longer treatment time. This led to the use of gauges definitely using the incisal edges as the reference. 3M Unitek® came out with their own bracket positioning gauge. This 3M Unitek® gauge is useful in improving the vertical positioning of the bracket. However, we realized the deficiency of this gauge is where the brackets failed to provide the ideal angulation due to faulty bracket position along the horizontal plane. This would be due to faulty incisal margins, attrition, gingival recessions, and excessive length of clinical crown or operator errors.

In order to improve the precise positioning of the bracket during bonding it is essential to involve both the vertical and horizontal references. Therefore, a 2 D bracket positioning gauge was designed in our department at Al-Adan Dental Center Kuwait, using both the planes and evaluated for its accuracy in bonding of PEA brackets. Since then the number of faulty bracket positioning has reduced considerably. This has not only saved chair time but also improved final treatment outcomes with reduced errors.

The basic design of this gauge is as follows.

- 1 A straight metal probe is taken
2. A metal ramp is soldered at the base of the probe. This ramp is designed to lie on the incisal edge of the tooth while bonding.
3. A metal piece that fits into the bracket slot is soldered to the metal probe at the preferred distance from the metal ramp.

Finally, the straight probe acts as a horizontal guide by coinciding with the long axis of the root (fig1&2). This design helps the practitioner to position the bracket with correct vertical and horizontal relationships simultaneously. This 2 D bracket positioning gauge should be used in conjunction with a panoramic view as well as clinical assessment of the long axis of the root. This in turn reduces the need to reposition the brackets or giving additional 2<sup>nd</sup> order bends in the wire.

Bonding errors can be dealt with by making multiple wire bends or by rebonding the brackets in order to correct the tooth position and some may even under fill the slot to deal with bracket inaccuracies to help in ideal bracket positioning. Therefore this gauge will be a very useful guidance tool for those orthodontists who enjoy the direct bonding technique.

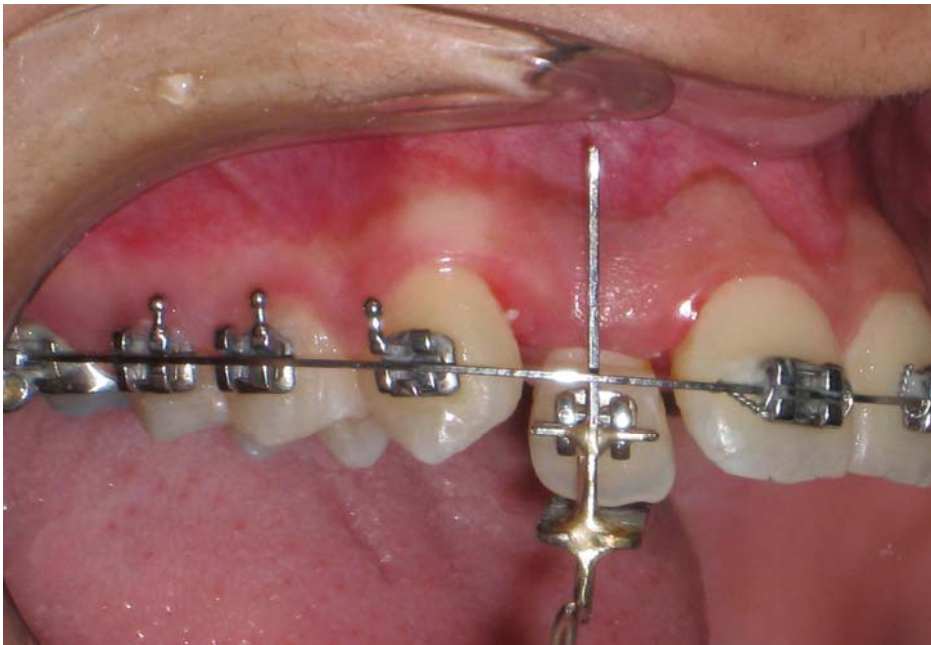


Fig 1: Clinical use of the 2D bracket positioning gauge.

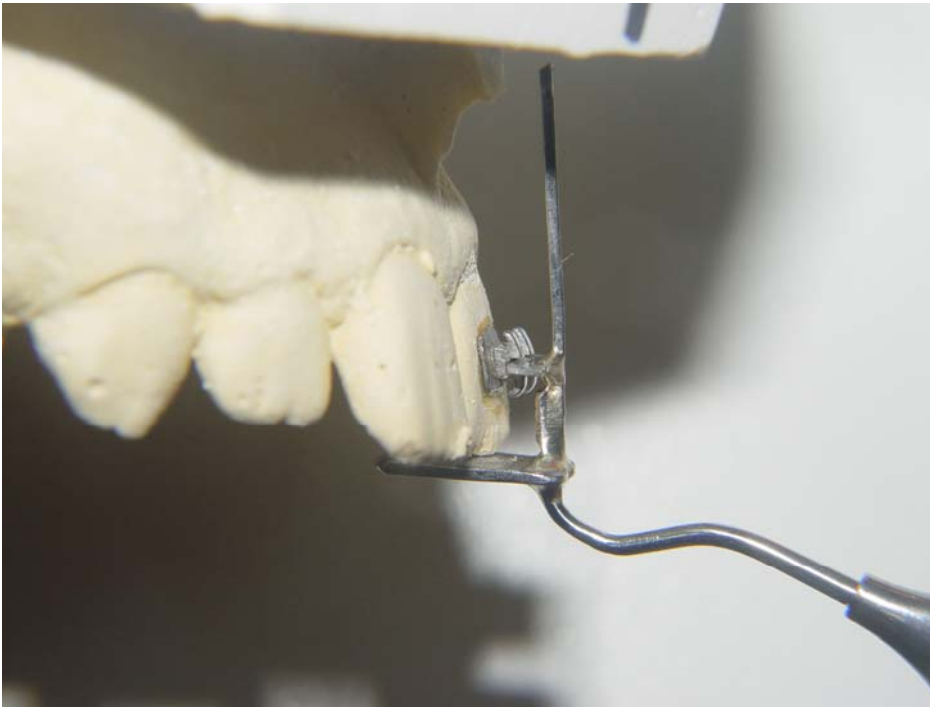


Fig 2: Side view of the 2D bracket positioning gauge.



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