

## 國立台灣大學技術行銷表

台大案號: 06A-100222 (由產學組填寫)

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產品/技術名稱	根管旋轉器械切削效率量測儀
發明人/單位	單秋成, 林正程, 林俊彬, <del>張程</del> 機械工程學系
產品/技術說明	根管治療用的銼針，其切削效率除影響到治療的時間，也會間接影響其在根管中意外斷裂的機會，如何評估比較不同設計的切削效率高低，目前仍沒有客觀、適當的解決方案。本發明可以充分模擬銼針在根管切削的情形，同時容許在不同施力精密的比較切削量，客觀的評估各種旋轉銼針的切削能力並比較其優劣，對旋轉銼針的研發將有正面的貢獻，預估國外銼針廠商將有相當的興趣。
應用範圍	牙科根管治療用的銼針之研發及質量提升
產品/技術優勢	目前文獻對根管銼針切削效率測試可以歸納為旋轉與往復銼削兩大類，銼針一般呈錐形，隨切削時間增加，切出的溝槽深度變深，銼針與被切削材料之間的接觸的位置，接觸面積，接觸角度以及接觸壓力均會持續改變，故雖以相同的初始條件對不同設計的銼針進行測試，過程中上述測試條件會發生程度不等的變化，不同設計間的切削受力模式並不一致。使不同銼針設計無法在客觀公平的共同基礎上比較其切削能力。本發明則可在整個測試過程將相關變數均維持如初始條件，故可準確，客觀，公平地進行不同銼針設計切削效率的比較。
市場潛力	目前牙科根管銼針有多個不同品牌，各有不同設計，何者的切削效果較佳，因為一直沒有客觀比較的方法，本發明可以達到公平客觀比較根管銼針的切削效果，各生產商應有一定興趣利用之了解自家產品是否有優於其他品牌的切削力，以及利用之研發更具切削力的產品。
產品/技術 智財權保護方式	

**Marketing Abstract of NTU's Invention Disclosure**

NTU's docket no: \_\_\_\_\_ (由技轉室填寫)

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<b>Title</b>	A cutting efficiency measurement system for endodontic rotary instruments.
<b>Inventor (s)</b>	Chow-Shing Shin, Zheng-Chen Lin, Chun-Pin Lin, Qi-Min Zhang
<b>Brief Description</b>	The cutting efficiency of endodontic rotary instruments will not only affect the treatment duration but also the probability of accidental fracture of the instrument inside the root canal. A survey of the literature showed that current testing techniques will inevitably use a different set of parameters when instruments of different brands and designs are tested. The current invention offers a solution for fair and objective comparison of the cutting power of rotary instruments of different designs on a common basis.
<b>Fields of Application</b>	The invention allows the cutting efficiency of endodontic rotary instruments of different designs to be evaluated on a common basis. On one hand this can help the endodontic clinicians to identify the more advantageous design for use. On the other hand, it can help the rotary instrument manufacturer to improve their design.
<b>Advantages</b>	Existing cutting efficiency testings employ either reciprocating or through-thickness hole drilling. In both cases, when the cutout groove or hole become deeper or larger, the contact position, contact angle, contact pressure and the contact area change. For instrument with different diameters and taper, the degree of change will be different and will vary during the same test. Thus, different instruments cannot be compared on a common basis. The current invention continuously feed virgin material for cutting. Thus the contact area, contact position and the contact angle can be kept constant throughout a test. Moreover, the contact position and the contact pressure can be controlled. This allows the cutting efficiency of different rotary endodontic instruments to be evaluated fairly and objectively on the same chosen set of testing parameters.
<b>Market Potential</b>	Different endodontic rotary instrument manufacturers should be eager to show that their own design possesses superior cutting efficiency than the others. With this tool, it can also help to develop instrument with better cutting power.
<b>IP Right(s)</b>	(由技轉室填寫)