

CJM Engineering, Inc.

www.MunceBurs.com

307 E. Ojai Ave, Suite 204
Ojai, CA 93023

E-mail: customerservice@cjengineering.com

World Wide: (805) 962-5532

Toll Free: (888) 256-0999

FAX: (805) 962-0527



Figure 1. Color bands indicate head diameter.

Munce Discovery Burs®

Advantages

- Facilitate deep troughing for locating separated instruments and hidden canals:
 - MB2 canals of maxillary molars
 - 2nd D canals of mandibular molars
 - Middle-mesial canals of mandibular molars
 - 2nd & 3rd canals of maxillary premolars
 - Calcified canals
- Compared with ultrasonic tips:
 - Generate no heat
 - Inexpensive
 - Create no inconvenient fine sticky dust
 - Not prone to spontaneous breakage
 - Will not further fracture a separated instrument
 - Create a more readable surface
- Unique design features:
 - Color bands on each shaft indicate bur tip-size (Fig. 1).
 - Added length facilitates a functional view corridor beyond the handpiece head (Fig. 2).
 - 0.7mm shaft on #1/4, #1/2 & #1 (Fig. 1) and 1mm dia on #2, #3, #4 & #6 prevents shaft impingement on deep access cavity walls (Fig. 2).
 - 6 tip sizes in both 31mm & 34mm lengths and 4 tip sizes in the 28mm length provide for targeted mid-depth structure removal and delicate deep troughing.
 - Carbide tips maintain cutting efficiency for maximum number of uses.
 - The “return” designed into the back-side of our carbide heads prevents gouging on the out-stroke while planing the walls (Fig. 3).
 - Stiff shaft provides positive control for deep troughing, in contrast with flexible shafts of Mueller burs (Fig. 4).
 - 3mm depth markings on the 34mm-long shafts provide valuable information in concert with continuous tactile feedback (Fig. 4).

Technique

- High magnification and high-intensity illumination are absolutely essential for all deep exploratory procedures.
- Create adequate coronal access, extending only when necessary to unencumber physical and visual access to the orifices.
- Beyond the chamber floor, trough with Munce Discovery Burs, using decreasing bur head sizes to progress apically.
- Use burs generally in a sweeping motion—as opposed to plunging—while progressing apically.
- Always work into the bulk of tooth structure—generally this will mean working away from the furcal aspect of canal walls.
- Deep exploration must be accompanied by frequent multi-angled radiographs (Fig. 5).
- Three-dimensional structure of the root can be seen with a 3D scan, but during procedures, it is generally more practical to conceptualize the third dimension based on multi-angled radiographs.
- Paired radiographic angles—one straight-on and one sharply angled from M or D—with a radio-opaque marker (Cavit or a radio-opaque liquid deposited by micro-tip injection) at the deepest exploratory point provides spatial information regarding deep exploration (Fig. 5).

The Original Troughing Bur™
Beyond Endo Access™

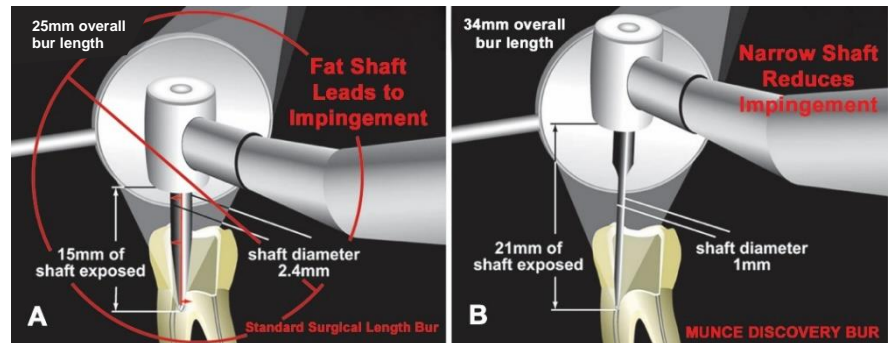


Figure 2. At only 25mm-long, standard length slow-speed round burs provide an inadequate view corridor beyond the handpiece head. In addition, the 2.35mm shaft diameter leads to shaft impingement on deep access cavity walls, unfavorably driving the head of the bur toward ledging and perforation (1A). By contrast, the enhanced view corridor that results with the use of 28mm, 31mm or 34mm-long Munce Discovery Burs is the result of the favorable geometry created by the increased distance between the handpiece head and coronal structure. The Munce shaft diameter, as narrow as 0.7mm, eliminates impingement on the access cavity walls, significantly reducing ledging and perforation risk (1B) while preserving shaft stiffness for positive troughing control.



Figure 3. Back-side Return



Figure 4. Stiff shaft of Munce Discovery Bur compared to flexible shaft of the smallest Mueller bur (~#2 round).

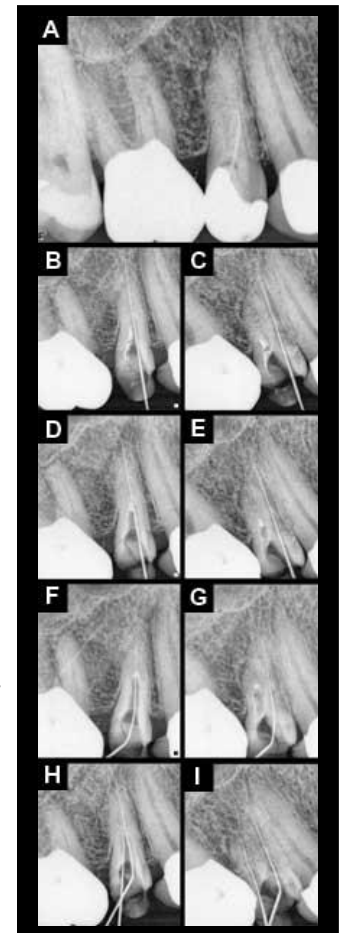


Figure 5. Apply the buccal object rule to paired, multi-angled radiographs—one straight-on and one angled sharply from M or D. Use a radio-opaque marker at incremental increases in exploratory depth (B to G). This technique provides discrete information about the spatial position of deep exploration within the root, reducing the risk of perforation while enhancing the chance of locating a hidden or calcified canal (H and I) or a separated instrument.

Over

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Munce Discovery Burs—Distinct Features

- A significant length of the business end of the shafts of Munce Discovery Burs have a reduced diameter of 1mm, and our three smallest head sizes have a shaft diameter of 0.7mm, compared to 2.35mm for standard latch-type shafts. In addition to preserving shaft stiffness for positive control during troughing, exploration and caries removal, this narrower shaft prevents impingement on deep access cavity walls, eliminating unfavorable “guidance” of the bur during operation.
- The overall length of Munce Discovery Bur Deep Troughers (34mm), Shallow Troughers (31mm), Endodontic Cariesectomy Burs (31mm), Super Shallow Troughers (28mm) and the diamond-tipped TruGrit TroughRefiner (30mm) is substantially longer than standard latch-type burs, and when combined with the narrow stiff shaft, provides a view corridor beyond the handpiece head and unimpeded exploration and troughing capacity.
- The carbide heads are durable, maintaining cutting efficiency over many more uses than standard stainless steel heads.
- These burs have a number of significant advantages over ultrasonic tips and are an excellent alternative for deep troughing procedures. The advantages include: 1) No heat generation. This can be significant when working deep within a root, only a fraction of a millimeter from the heat-labile PDL; 2) They create a granular dust which is more easily dissipated with a blast of air than the “magnetic” powdery dust of ultrasonic tips; 3) They are not prone to spontaneous breakage, which is a significant distinction between Munce Discovery Burs and ultrasonic tips which can run as high as \$100+ for some tips. Despite these advantages, these burs may not displace ultrasonic tips completely, and the two instruments are often used in conjunction with each other.
- **The Shallow Troughers** (31mm) and **Super Shallow Troughers** (28mm) were specifically designed for procedures on the chamber floor such as troughing for the MB2 canal of maxillary molars, “brushing out” the isthmus between the MB & ML or DB & DL canals of mandibular molars, searching for the middle mesial canal of mandibular molars and clarifying the complex systems of premolars. They are also useful where limited inter-arch space precludes the use of the Deep Troughers.
- **The Deep Troughers** (34mm) were designed for deeper operations within the root such as exposure of separated instruments, removal of pulpal tissue from deep within C-shaped canals, chasing severely-calcified canals into the mid-root and beyond.
- **The Endodontic Cariesectomy Bur** (31mm) has a #6 round carbide head designed to facilitate the type of deep caries removal often required in endodontic cases, and for which there was previously no comparable instrument. Again, the extended length of the narrow stiff shaft provides visibility beyond the handpiece head while maintaining positive caries-removing control and preventing shaft impingement on deep cavity walls. This bur, often in combination with the #3 and #4 Shallow and the #3 Super Shallow Troughers, is ideal for caries removal around crown margins from within the access cavity and the chamber floor.
- **The TruGrit TroughRefiner**[®] (30mm) is the perfect companion to the fluted carbide Munce Discovery Burs. The 4mm-long diamond portion that tapers down to 0.4mm at the very tip refines the trough already discovered and explored by Super Shallow Troughers, Shallow Troughers or Deep Troughers without creating the heat or the pesky dust of ultrasonic tips. With its slow rotation, the TruGrit TroughRefiner offers increased operational control for refining the isthmus between the canals of molars, the complex isthmus systems of bicuspid and for dissecting the cement-line around posts...and as with the rest of our bur line, these burs are very cost-effective, especially considering that they are durable work-horses!

Of course, it goes without saying...again...that when working with troughing burs anywhere beyond the floor, and even on the floor for that matter, high magnification and high-intensity illumination are essential requirements for safe operation—just as with any rotating instrument when operating deep within tooth structure.

Because CJM Engineering, Inc. is a small privately held company, I am always available to discuss questions, suggestions or clinical applications of our unique product line. Contact us from anywhere worldwide by phone at (805) 962-5532 or at customerservice@cjmengineering.com.

Sincerely,


C. John Munce, D.D.S., F.I.C.D.
Diplomate American Board of Endodontics
CEO, CJM Engineering, Inc.

Over

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