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The Dent-Liner™

A Bulletin Dealing With Issues For Dental Health Professionals

Peter T. Pontsa, RDT has over 39 years of experience in the dental profession. In 1991 he established Dent-Line of Canada Inc. and is currently president of this dental supply company. He is a leader in superior professional techniques in fixed and removable restorations and he shares this knowledge through articles and seminars which he regularly provides. Peter is a past president of the College of Dental Technologists of Ontario and a current member of the Academy of Dental Technology. He is also pleased to be involved as co-publisher of Spectrum Denturism.

Special Interest Articles:

Individual Highlights:

Precision Milling for Partial Denture Design

When a patient needs a restoration that requires invisible anchoring without the show of clasps, the combination removable partial denture is the selected treatment plan. Combination dentures offer a completely sufficient replacement of missing masticatory function that the patient can easily manage. The complex fabrication when compared to conventional clasp retained partial dentures is a trade off for significant function and aesthetics. Compared to partial dentures made with clasps, insertion and removal are made much easier for the patient, especially when they can feel the snap-in of the attachment such as with the Bredent VKS-SG. The shear loads that are harmful to the remaining dentition and the periodontal ligament are significantly diminished through the reciprocal arm and the precise path of insertion. Precise mechanical retention and supporting foundations are integrated into the denture. These include ready made attachments and individually prepared milled rests which ensure denture seating while the patient talks, chews and swallows. A long free end saddle provides increased security against lifting forces, unlike clasp-retained dentures. Patients can extend the life of the restoration's retentive qualities and durability by proper oral hygiene and by visiting a dental health professional every six months. Prerequisites for treatment include abutment teeth that should be free of inflammation, capable of bearing loads and have adequate length, so that attachments do not have to be shortened very much. The area of the milled surfaces must also be at least 2.5 mm to 4.0 mm high. The design factors should take into account allowances for loading, tensile and shear forces. Therefore, the reciprocal arm, the shoulders and interlock are important in preventing any adverse or strenuous conditions. Twist milling cutters have a good cutting effect and are used for efficient wax milling. Pre mark positions of ledges and interlocks on the full contoured waxed up crown using a permanent marker or notch into the wax. The milling cutter is guided using very little pressure at a clockwise rotation of 1,000 to 5,000 rpm which results in the desired smooth chip free milled surfaces. Twist or spiral wax cutters provide effective outcomes for rough milling of wax. The rounded tips make it easier to provide cervical round edges on the end of the ledge. The chamfered margin provides hygienic advantages over butt or square shoulders. The cervical milled ledges should be positioned approximately 1 mm above the gingival margin. To improve the surface debubblizer is used to moisten the wax surface before proceeding. If the abutment crown is naturally short it is advisable to provide a ledge with a square edge. Occlusal shoulders can be made at 90° right angles or can be chamfered. Shoulders positioned at 90° to the path of insertion are best suited for the transmission of loads; however chamfered shoulders are easier to produce. Groove drills are effective for drilling interlocks that must be positioned 180° opposite the attachment. Utilizing the micrometer on

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Getting the Most from Attachment Selection

Let's face it, there are hundreds of attachments from quite a few manufacturers and there is good reason for confusion on which ones are suitable. What to use on any given case can be a challenge. When it comes to treatment planning the key to attachment selection is based on a number of requirements such as space, vertical dimension, as well as the status of the remaining teeth. Are they short, are they periodontically involved? The criteria for implants are similar, in that the gingival tissue has to be acceptable for treatment. The other key factor is the patient. It is important to discuss whether the previous restoration if any, had failings plus evaluate the need for aesthetics, comfort, physiological or behavioural patterns. Is the patient arthritic, with manual dexterity issues? Or are they bruxers and have poor hygienic habits?

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Getting the Most from Attachment Selection cont'd...

Bredent's BF-1 Milling Machine

Bredent has 0° wax, profile and polishing burs. Recently introduced are the new 1° Cross Cut Wax and Profile Milling burs.

Renfert's new Model Arch Trimmers; Milo (Left) and Milo Pro (Right).

Bredent's Diamond Polishing Paste.

Renfert's Scotch Brite™ are impregnated with an abrasive agent.

These issues are important if the restoration is to last a reasonably long time. It has to be understood that there are some attachments that are resilient and some that are rigid. The extra coronal (outside the crown) seem to be more resilient than the intercoronal (inside the crown). Some are made of plastic or nylon that provide different levels of retention and others are precision manufactured in metal which provide one level of retention. There are types that slide, snap and others that lock. Each has a particular use in implant over dentures or combination denture design where the goal is to preserve and protect the remaining dentition. Attachments are used for bilateral cases, over denture root borne, implant supported directly or by bars and clips. Attachment selection is made after careful evaluation of the oral environment. A treatment plan is selected utilizing a design to protect and preserve the remaining dentition. There is no attachment that is perfect for every application, so it's best to select four or five that will cover the majority of cases and situations. For bilateral cases, the Bredent VKS-SG in 1.7 mm or 2.2 mm stud will cover smaller and larger vertical dimensions and buccal lingual space. It has a resilient snap in and ten levels of retention. The VKS-OC universal males in stud size 1.7 mm or 2.2 mm will accommodate an intraradicular procedure (root cap) with a resilient snap and ten levels of retention. In a limited space situation in the anterior, the Stud Fixator is a good selection. It is 2.0 mm in diameter and 3 .0 mm in length and is a plunger type attachment which has a ceramic tip and a silicone buffer in stead of a spring which may lose retention over time. In cases where the implant bar is not supporting the over denture and is causing lift off, the Locking Pin E is ideal for keeping the denture in place. The patient can feel the pin engage with a click. For implant supported over dentures with a bar, the Bredent VSP-GS has three retention levels and can be used in combination with any of the other attachments mentioned. Considering the multitude of attachments and the confusion it generates, it makes sense to choose a few attachments and get familiar with them. Almost all situations can be addressed in comfort without having many different components that will almost never be used. When we strive to achieve superior aesthetics by forgoing clasping teeth and use attachments, it enables us to go beyond the limits of conventional partial denture design.

Source; Peter T. Pontsa

Featured Product; Renfert's New Model Arch Trimmer

Introducing the Milo and MiloPro dental arch trimmer which can complete precision trimming with a minimum of pressure. The unit has powerful quiet running motor that runs up to 3,350 RPM's. It has excellent positional stability and tilt resistance. The removable work table allows the cutter to be quickly changed out. The unit has a built-in connector for hook up to a dust extractor. Controls are centrally located on the front cover by a plastic film and can be operated with one hand. Two different cutters cover all areas of application such as dental stone, polyethylene or epoxy resins. **For more information call us at 1-800-250-5111.**

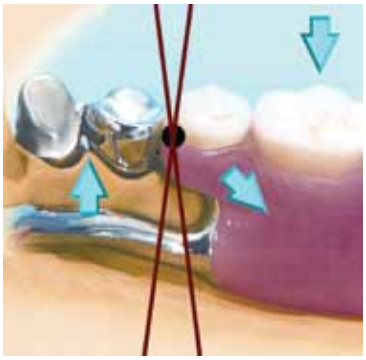
Featured Product; Bredent's Diamond Polishing Paste

Bredent Diamond Polishing Paste is suitable for pressable and all ceramic applications. Certain polishing and glazing techniques require a fine adhesive diamond for high lustre on all ceramic materials. The high percentage of diamond particles provides for maximum abrasion and best possible glaze. The special consistency of the polishing paste enables it to diffuse into the felt wheel or brush and polish up to 5 times longer than conventional types. The paste liquefies during polishing and can be pushed backwards and forwards on the ceramic surface without splashing. There by allowing you to use less paste and save costs. This diamond paste is used by some of the best ceramists in the world. **Call us today.**

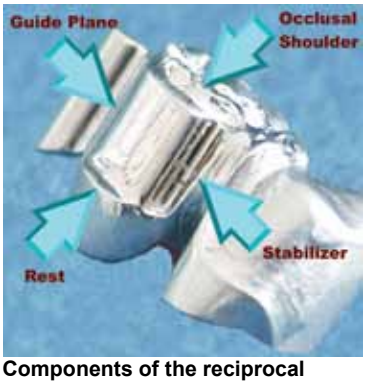
Featured Product; Renfert's Scotch Brite™ Miniature Brushes

These brushes are impregnated with an abrasive agent which replaces the limited performance of emery paper. This outstanding brush is well suited for preliminary polishing of denture acrylics and for working on transitional areas between soft and hard acrylics. They are flexible when applied to denture acrylics and generate very low heat. The best results are achieved at speeds of approximately 5000 RPM's while applying gentle pressure. They are available in packages of 12 and are coarse or medium in abrasive qualities. **Call for more information on our featured products at 1-800-250-5111.**

Precision Milling for Partial Denture Design cont'd...

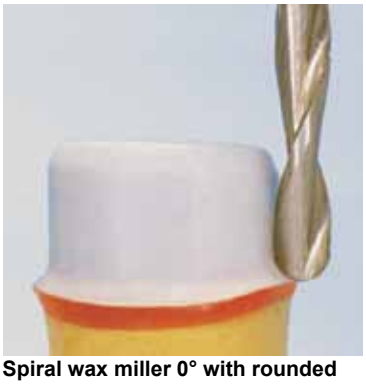


The torquing effect is transferred away from the abutments by the bracing arm.



Components of the reciprocal bracing arm.

Cross arch stabilization will prevent dislodging and transverse rotations.



Spiral wax miller 0° with rounded end. F1352W23 at 3,000 to 5,000 rpm.

Profile milling bur for prefinishing. F1372H23 at 15,000 to 20,000 rpm.

Polish milling bur for final polishing. F1372P23 at 20,000 rpm.

Prepare the out-line of the reciprocal bracing arm with felt pen.

Finalize the wax up with the stabilizer slot and the bracing arm.

the BF1 milling machine will allow different depths in order to obtain optimal accuracy. Interlock grooves which are open to the gingival side offer hygienic advantages as opposed to ones that are closed. There should also be adequate space between the papilla and the crowns so that the interdental space can be cleaned with a fine brush. Drilling in wax and refining the interlock in the metal stage is the most prudent approach. Sprue away from the milled surfaces and make sure the interlocks are completely filled with investment during the investment procedure. After casting in the alloy of your choice, the abutment crowns should be blasted with 50µm AlOx and fitted to dies on the master model. The abutment crowns are fixed to the transfer device with modelling resin (Bredent PiKuPlast 36). The inside of the crowns are coated with a thin layer of vaseline, modelling resin is then filled to the margin and a dowel pin is placed into it and allowed to set. The transfer device is secured into the milling machine chuck and then lowered into a mould filled with wet plaster to create a milling model. The BF1 milling machine provides "free hand" milling with a mobile milling spindle. This machine is designed to be simple and precise for milling, surveying and drilling. The upper unit can be locked into any position or can be used as a free floating milling arm with a 360° rotation. This provides full contact with the mill ing burs at the circumferential or flat surface of any restoration. This unit is made of rigid construction containing aluminium and stainless chromium steel weighing 18 kg. (40 lbs). The micro motor is manufactured in Germany by Schick and runs very smoothly, concentrically, is vibration free and has a quick chuck system for rapid bur exchanges. The control module unit has an off/on switch for the micro motor, or an optional foot control. Both systems offer forward, reverse rotation and variable speeds ranging from 0 to 30,000 RPM. The high speed in combination with non precious milling burs ensures safe precise milling and drilling even on hard Co/Cr alloys. There is an ergonomic adjustable table with an eye level working position. The functional locking lever for the model holder allows you to lock in a horizontal position with a turning range of 90°. This permits vertical drilling while utilizing the built in micro meter that acts as a depth stop for holes or grooves. Also when cutting in metal the same sized burs should be used as were utilized for the wax milling.

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Invest carefully to avoid trapping bubbles.

Refine the areas in metal using a 0° flat end profile bur F1162H15.

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About Our Organization...

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Precision Milling for Partial Denture Design cont'd...

Although Bredent has developed many types of millers, the 0° parallel cutters with the chamfered blade end are the most commonly used. Due to its round head, when grinding the surface, a deeper penetration into the metal work is prevented and the chatter marks or skipping are mostly avoided. The Bredent millers are available in a 2.5 mm standard shank or an optional 3.0 mm. Because of the heavier shank the 3.0 mm provides smooth and efficient operation with very little deflection. The prerequisites for smooth running behaviour are a steady hand and a stable milling arm with a zero tolerance in all ranges of movement. The most reliable milling technique especially in metal is a left to right movement across the surface with a clockwise bur rotation (cut up milling). This reduces the chance of skipping marks and is effective in removing material from the metal surface. Milling oil is an important component since it reduces heat build up at the interface and prolongs the life of the millers while clumping and carrying away the grindings. After shaping the metal work, the final polishing can be accomplished with Bredent's polish miller or with a cotton wool and diamond paste. Finally partial denture design requires that abutments for support should have a milled ledge and interlock to provide load bearing and protect the periodontal ligament from harm. Results from many studies indicate that plastic retention sleeves in conjunction with precision milling provide better retention over time and can be easily replaced. The rising demand of patients expectations with respect to their dentures requires a better understanding and focus on the part of those who are involved in providing and implementing the right treatment strategy.

Source; Peter T. Pontsa, RDT

Special Announcements: Upcoming Trade Shows

The 2008 CDTA Alberta Dental Technology Conference & Trade Show will be held on April 4th and 5th in Edmonton. This year's theme is the "Wild West" and will be held at the Chateau Louis Hotel and conference Centre; 11727 Kingsway, Edmonton. For reservations call 1-800-661-9843. Please drop by our booth and give us a How Dee Do! **The 3rd Biannual Dent Atlantic 2008** is on April 25th & 26th at the Delta Halifax Hotel in Halifax Nova Scotia. A block of rooms will be set aside for convention delegates; for reservations call 902-425-6700. Many of your favourite dealers will be there plus experience a great line up of speakers such as Trevor Langchild, Stephan Borenstien, Camille Habaly, Dean Swift, Peter T. Pontsa and others. Hope to see you at this great event! **The 34th Annual Tecnorama-Dental Technology & Denturism Convention** will be held on Friday May 9th & Saturday May 10th at the Double Tree International Plaza Hotel and Conference Centre in Toronto. A block of rooms will be reserved for delegates; for reservations call 1-800-668-3656. The admission is free for all seminars and exhibitions. We will be showing new products at our booth so please drop by.

Trade Show News: Donation to George Brown

Dent-Line of Canada Inc. was delighted to present three Waxlectric II units to the dental technology program at George Brown College. On hand for the presentation were Mr. Bernie Mullen, Professor and his 3rd year students. Dent-Line and Renfert USA feel privileged to provide state of the art technology to the program and wish the students the best of success as they enter their chosen field in dental technology. **Amongst the students, Peter T. Pontsa, RDT, Bernie Mullen, RDT and Musa Monshizad are pictured to the right of the photo with Angela van Breemen, BA to the very far right.**

Trade Show News: Donation to the Tech Voc School

Dent-Line of Canada Inc. and Renfert USA recently donated two Waxlectrics to the Technical Vocational School in Winnipeg. The top student, upon graduation from the program will receive one of these electronic waxers for free. Julius Gross, RDT who runs the dental technology program says *"Thanks Peter, for all the support to education in Manitoba".* **Pictured right, enthusiastic students like those shown here are what will keep our industry strong and dynamic in the future.**