

The Dent-Liner™



Peter T. Pontsa, RDT has over 40 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. He is also pleased to be involved as co-publisher of Spectrum Denturism.

Special Interest Articles:

• Attachment Interlocks in Fixed Prosthodontics 1

• Cost Effective Grinding of Zirconia with the Diagen Turbo 2

Individual Highlights:

• Bredent's Diabolo Sintered Diamond Discs 2

• Renfert's Sympro 2

• Announcements 4

• Trade News 4

1-800-250-5111

A Bulletin Dealing With Issues For Dental Health Professionals

Attachment Interlocks in Fixed Prosthodontics

There is a great emphasis on cosmetic all ceramic crown and bridgework these days, however, traditional PFM bridgework is a treatment modality that still has its place in modern dentistry. A "fixed-fixed" bridge is a strong and retentive restoration solution for replacing missing teeth and it also prevents neighboring teeth from drifting and developing mal occlusion. The occlusal disharmony of the teeth can form premature contacts causing deviations in normal movements of the mandible. This may result in temporomandibular joint dysfunction and muscle spasms which lead to pain. Because of these reasons it is desirable to prevent tooth loss if at all possible. Where bridge work is concerned, severely tilted teeth create divergent abutments, as a result clinical management of the abutments requires diagnostic models to coordinate tooth preparations. However this situation can be overcome by sectional or segmented prosthesis using an interlock attachment and is a more conservative approach for preparing tooth structure. During mastication in segmented bridges the following occurs; the load is distributed from weak abutment teeth to strong abutment teeth; the loads from strong abutment teeth are distributed to the location of the attachment thus protecting the weak teeth. Where a bridge is segmented between a pontic and an abutment, a lot of stress will be on the attachment. The best situation is when it is splinted between crowns,

since the abutments relieve stress. Using one pontic from an attachment is not problematic; two may be possible, but three might be too many, especially in the posterior region. The intra coronal attachment is not recommended in an unopposed section of the occlusion since the result will be an over-eruption and dislodgement from the attachment keyway. Implementation of segmented bridgework can mean the prevention of devitalizing the tooth in the case of divergent abutments and it also allows the economical conversion to a partial denture should the abutment fail in the future. This permits forward preparation that includes an interlock in the treatment planning in the event the abutment should be potentially unsuccessful. Another aspect in favour of interlocks is the flexure of the mandible and teeth. The movement that occurs may be approximately 0.08 mm just by opening the mouth. A fixed or unsegmented bridge reduces this natural movement; whereas segmented bridgework allows this natural movement to occur without resistance. It has the stress breaking ability to work with the physiological movements of the teeth and mandible. The Vario Soft 3 Conical Bridge Attachment offers many advantages by allowing for one step waxing of multiple unit restorations thus a better retention fit and appearance over hand milled restorations is achieved.

continued on page 2

Cost Effective Grinding of Zirconia with Bredent's Diagen Turbo

The diagen turbo wheels and cylinders were developed for the effective shaping of zirconia. The diamond instruments have extraordinary grinding properties due to a special bonding material made of ceramics. The porcelain binds the diamonds together creating a non contaminating grinder that won't corrupt the zirconia. The surface of the zirconia does not overheat when shaping since the diagens need less pressure exerted while working. The diagen's super smooth grinding results in ultra precision grinding efficiency compared to less

expensive instruments which don't cut as well and overheat the zirconia terribly. Theoretical analysis indicates that diamond cutting depth and surface roughness depend on the diagen's rotating and moving speed, diamond cutting edge and cutting angle. Slow speeds lead to greater efficiency when grinding zirconia since the material is removed gradually, rather than with aggressive force which would damage the material and the porcelain receiving surface.

continued on page 4

Attachment Interlocks in Fixed Prosthodontics cont'd...



Male and female parts are simply exchanged for intra or extra coronal applications. Part No. 43007340



The transfuser has a silicone tip that is designed to fill attachments or wax patterns bubble free. Part No. 390S0001



Due to the extremely small diameter of the fissure tool, it allows deep penetration of attachments and fissures. part No. B153NF04



Seracol is a light cured material designed for joining wax patterns.



Bredent's Diabolo Sintered Diamond Discs



Renfert's NEW Sympro

The VS3 Conical Attachment can be used on fixed or removable restorations and does not need separate or special mandrels. When required the attachment can overcome the disadvantages associated with the use of intracoronal attachments such as unnecessary tooth reduction, compromised embrasures, which result in oral hygiene and periodontal problems and poor aesthetics. With the design feature of attached mandrels, intra or extra coronal applications are possible when the individual case requires it. Attachments should be selected from the group with the most suitable characteristics for the task required, therefore providing an effective answer to prosthesis retention in a way that is cosmetically pleasing. An important reason why we segment bridgework is that the longer the span the more distortion in waxing and spruing as well as during the ceramic cycle. By segmenting the bridgework, it helps eliminate the limitations that arise in multi-unit bridges by fabricating bridges in modular units. Prefabricated plastic attachments provide the dental technologists with easy to use connectors that result in accurate well fitting broken stress bridges. They are generally placed in a retainer wax pattern within the normal anatomical axial contour of the preparation. The male is slightly triangular with two conical tubes or double cones. The mandrel is molded as an integral part of the male and also the female

which expands the range of applications. The attachment fits precisely and is manufactured with synthetic resins which burn out cleanly. The wall thickness of the female has been kept to a minimum in order to utilize maximum occlusal gingival length. Because of the tapered design the occlusal portion of the male has the greatest amount of space and the double cones increase the retention area by 50%. Correct vertical dimension is required for the attachment to function properly nevertheless the attachment can be reduced up to 40% of its length without compromising its effectiveness. The position of the VS3 CB attachment is determined by mounting the model in the tilt table of the surveyor and with a mandrel in the spindle finding the appropriate path of insertion. The wax patterns are completed and joined with Seracol UV (Bredent # 54001151) a light cured material for joining wax patterns. The attachment is brought into the position required and sealed with wax or Seracol. The wax patterns are checked for proper seating on their dies as well as the alignment of the attachment. The wax bridge parts are mounted with special sprues and invested according to the Casting Technique Manual (Bredent # 992961GB). The Transfuser instrument with the flexible silicone tip (Bredent # 390S0001) is designed to fill the patterns and attachments without bubbles. Following the casting procedure the attachments

continued on page 3

Featured Product: Bredent's Diabolo Sintered Diamond Discs

Bredent's Diabolo Sintered Diamond Discs are perfect for cutting and separating zirconia, pressable ceramics and traditional porcelain. Working with low pressure and low RPM's, the discs separate accurately and efficiently. The superior class of diamond grinding disc is comprised of carefully selected natural diamonds that are entirely integrated into a

mixture of metal and binding material. Because of the special manufacturing process worn out diamond grit is automatically removed and replaced by razor sharp diamond crystals so that instant sharpening is achieved. **For more information and pricing contact dent-line at 1-800-251-5111.**

Featured Product: Renfert's NEW Sympro

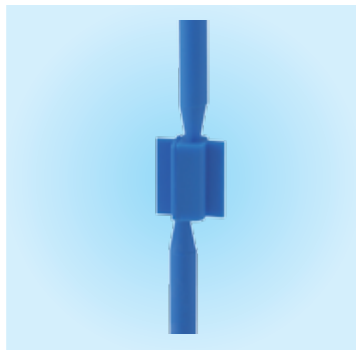
The Sympro is a compact, high performing device used to clean prosthetic dentures, orthodontic appliances and splints. The unit works on a unique magnetic pin agitation function used in conjunction with the Special **SYPROfluid Universal Liquid**; it is fully automatic, very efficient and quiet. It comes with the standard three year warranty which attests to Renfert's high quality tradition. After approximately 15 minutes, the Sympro will have removed difficult deposits such as plaque and tartar, and stains such as coffee, tea and red wine. The technology is based on the use of the

SYMPROfluid and the magnetic pins. The unit works on a sequential reverse rotation so that the dentures are moved to different positions within the chamber in order to increase cleaning efficiency, in even the most difficult to reach areas. The three rotational speeds guarantee a material compatible, efficient and gentle cleaning procedure suitable for all types of objects. Renfert also provides the **SYMPROfluid Nicoclean** which can be used whenever post-treatment is necessary without use of the device. **For details call us today at 1-800-250-5111!**

Attachment Interlocks in Fixed Prosthodontics cont'd...



The path of insertion is determined and the wax patterns are dipped in Bredent's Elaflex wax. Part No. 51000900.



Male and female parts are assembled. The parallel mandrel is removed from the male part for extracoronary application.



The attachment is shortened to conform to the gingiva and the vertical dimension of the inter-occlusal space.



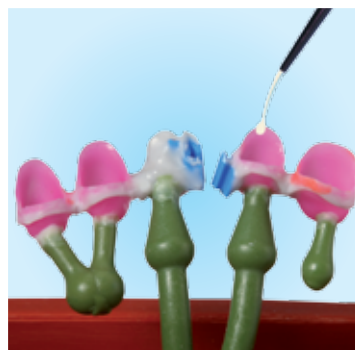
The pontic and attachment are incorporated into the secondary section of the segmented bridge.



The mandrel breaks off at the narrow part when not needed.



The primary and secondary parts are waxed up in one step, saving time and material.



The bridge pattern is sprued according to the bredent casting technique.



Segments are blasted with AIOx2 50 microns. Assembly can be assisted with colloidal graphite.

are sandblasted with 50 micron Cobra abrasive (Renfert # 1594-1205). If bubbles do happen to occur, the attachment fissure bur (Bredent # B153NF04) is designed to reach deep into the attachment to remove them. Colloidal Graphite liquid (Bredent # 54000706) can be used as high spot indicator to facilitate assembly and fit. Care should be taken to prevent porcelain from entering the female section during the build up procedure. The completed restoration fabricated with the VS3 CB attachment meets the requirements of a broken stress or non rigid connector. In addition a greater aesthetic benefit is realized by not displaying metal on the occlusal surfaces. The outcome of proper treatment planning will encompass; form, fit, function and aesthetics. The advantages of segmented bridgework include protecting weak abutments, at the same time non parallel abutments can be controlled while providing positive physiological movement to the teeth and they are more accurate than multispanned bridges. In addition, should one section of the conical bridge require replacement, an economical conversion to an RPD is possible. Finally the VS3 CB attachment should be used in a conventional intra or extracoronary

application as a non rigid connector to support the functional load of missing teeth in addition to the metal design which supports the overall application of porcelain for an aesthetic and cosmetic bridge. **Source; Peter T. Pontsa, RDT**

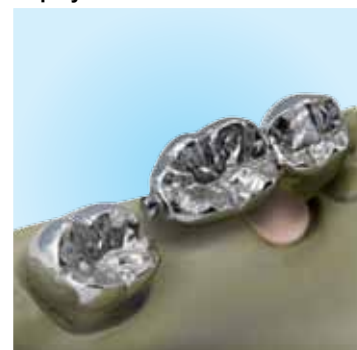
References;

- (1) A.L.Pissiotis,K.X.Michalakis, An esthetic and hygienic approach to the use of intracoronary attachments as interlocks in fixed Prosthodontics. *Jour of Prosth Dentistry*.1998; vol.79, issue 3, pgs. 347-349
- (2) I.D.Zinner,R.D.Miller,F.V. Panno, Clinical management of abutments with intracoronary attachments. *Jour of Prosth Dentistry*. 1992;vol.67, issue 6,pgs 761-767
- (3) G.Becerra,M.MacEntee, A classification of precision attachments. *Jour of Prosth Dentistry*. 1987;vol.58, issue3,pgs322-327
- (4) M.C.Mensor. Classification and selection of attachments. *Jour of Prosth Dentistry*, 1973; vol.29, issue5, pgs 494-497
- (5) P.T.Pontsa, Establishing Aesthetics in a low vertical zone; utilising the stud fixator attachment. *Spectrum Dialogue*; 2006;vol.5 issue 4 pgs 94-99

NOTE: The publication of the pictures were courtesy of bredent GmbH & Co. KG



An aesthetic look without the metal display of the attachment.



The integrated parallel holder allows intra or extracoronary uses.

dent-line of canada

1170 Concession 4,
Adjala, R.R. # 1
Loretto, Ontario,
L0G 1L0

PHONE:
1-800-250-5111
Or
519-942-9315

FAX:
519-942-8150

EMAIL:
Info@dent-line.com

We're on the Web!
See us at:
www.dent-line.com

About Our Organization...

The Dent-Liner; Vol. 13 No. 4
Publisher; Peter T. Pontsa RDT
Editor; A. van Breemen, BA

Subscription Rates:
Canada 1 Year \$ 6.00
USA 1 Year \$ 8.00
International 1 Year \$16.00

Continuing education credits apply for a review of this newsletter. For details contact the Quality Assurance committee in your jurisdiction.

Receipt of the dent-liner implies consent under the P.I.E.D.A. unless you advise dent-line of canada either orally or in writing that you wish not to receive this newsletter.

Cost Effective Grinding of Zirconia with the Diagen Turbo cont'd...

Results show that super smooth ground surfaces can be obtained by decreasing the diagen's moving speed over the surface while keeping rotational speed low as well. Excessive grinding can cause a crystalline transformation of zirconia that can compromise the strength of the substructure adversely altering the co-efficient of thermal expansion at the bond interface. Before porcelain application, the surface of zirconia must be prepared properly because the adhesion of porcelain to the sub frame or copings is vital. An improperly prepared interface between porcelain and zirconia will become catastrophic. These two materials are not identical and are not in fact comparable materials and for that reason zirconia needs a defined working procedure. There are differences in zirconia ceramics that can happen with the level of purity, such as the grain size trace elements and stabilizing compounds which affect the consistency of its formulation. Batch to batch can vary and effect the shrinkage factor during sintering and eventually could destabilize the co-efficiency of thermal expansion (CTE). These factors can eventually manipulate the fit and

the strength of the restoration and the thermal stability of the porcelain which will be placed over its surface. The interface conditioning created by the diagen on the zirconia should be more than adequate to enhance the outer surface contact with the applied porcelain. However, be cautious that too many deep irregular grooves could trap air gasses and impurities which may contaminate the porcelain or eventually vent through during the next firing cycle, thus destroying the work. The Diagen Turbo removes large irregularities and troughs and prepares the zirconia for pressed or porcelain application. The proper surface condition of zirconia is not easy to examine visually however if the interface preparation has been thorough the surface will guarantee the most advantageous bond with the final ceramic treatment. Diagens are also very useful for zirconia implant abutments. Leading manufacturers recommend diagens for shaping their zirconia blanks which allows versatile modifications. This means it is possible to produce all angulations between 0° and 25° using bredent diagen turbos. **Source Peter T. Pontsa RDT.**

Special Announcement: D.I.A.C. Recognition Plaque

Dent-line of Canada Inc. is pleased to report that recently we received a plaque from the Dental Industry Association of Canada/Association Canadienne de l'Industrie Dentaire (D.I.A.C.) in recognition of our continued support through our membership in the association. D.I.A.C. was founded to serve the dental industry by providing the highest standard of service to the dental industry in Canada. D.I.A.C.'s mission statement is to comply with government and regulatory issues and provide assistance to members in the development of sound dental education and ethical business practices. As a result, D.I.A.C. has contributed greatly to the delivery of national health to the country. The organization also serves as a liaison with professional associations and other trade groups in order to better serve the

public and provides sales, marketing and technical education through sponsored events, such as the very popular and successful Technorama held in the spring of each year. Peter T. Pontsa, RDT and Angela van Breemen, BA, owners of Dent-Line of Canada are pleased to have been members of D.I.A.C. since 1991.



Trade Show News:

Dent-line of Canada Inc., will be exhibiting at Dentechnica du Québec, the 9th annual conference on October 30th and 31st 2009 at Hotel Mortagne in Boucherville. Opening hours for lectures and booth visitors are Friday October

30th 4:00 pm to 9:00 pm and Saturday October 31st from 9:00 am to 2:30 pm. For reservations call the Hotel Mortagne 1-877-655-9966. For further information call Jean Compagna at 514-728-5352 or e-mail prolabo@rogers.com.

Trade Show News:

The Dental Technicians Association of B.C. is holding its annual convention on Sept. 18th and 19th, 2009. The event will take place at the Sheraton Vancouver Guildford Hotel in Surrey B.C. We invite everyone to come and visit us at booth #35 to see new products. Friday night the DTA will host a wine and cheese event. The educational programs will be on Sat. 19th from 8:30 am to 11:30 am and 1:30 pm to 3:00 pm.

Please join Peter T. Pontsa RDT on Saturday from 8:30 am to 11:30 am in the Green Timber Room #1, where he will present "Attachments in Dentistry; Specifications and Use". The lecture will present an extensive analysis of attachment applications for partial dentures, over dentures, and retrievability in implants. For reservations call 604-582-9288 or visit www.sheraton.com/guildford.