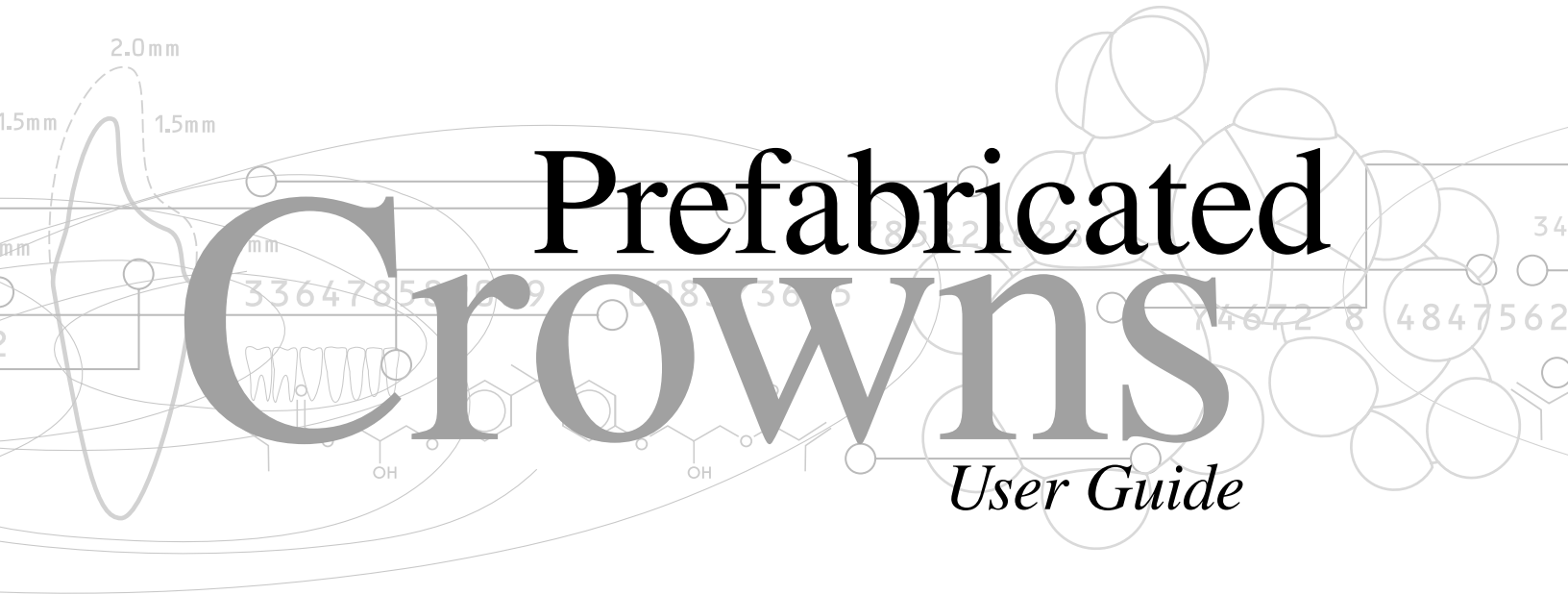
3M ESPE

A comprehensive guide to achieving the best results with 3M™ ESPE™ Prefabricated Crowns.



Prefabricated Crowns

User Guide

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3M™ ESPE™ Stainless Steel Crowns

3M ESPE Stainless Steel Crowns are designed to provide long-term coverage of primary molar teeth and long-term provisional coverage of permanent molar teeth.

Different designs of prefabricated metal crowns have been offered to the dental profession over the years ranging from straight sided "bucket" crowns to the anatomically shaped 3M ESPE stainless steel crowns available today.

3M ESPE stainless steel crowns have been designed to accurately duplicate the anatomy of primary and first permanent molars in a selection of sizes **(fig. 1)**. The crowns are manufactured with a life-like height, contour and occlusal surface. They are pre-crimped at the cervical margin to give good retention and a "snap" fit.

The realistic anatomical shape of a 3M ESPE stainless steel primary molar crown means that minimal adjustment is necessary to obtain good retention. There is good harmony with the patient's occlusion and the smooth stainless steel alloy surface helps maintain gingival health and patient comfort **(fig. 2)**.

(fig. 2)

(fig. 1)

3M ESPE Stainless Steel Primary Molar Crowns

The morphology of a primary molar differs significantly from that of a permanent molar tooth.

The cervical areas of primary molars are narrower than their permanent counterparts, but the most bulbous part of the crown is at the cervical third. (1) It is beneath this bulbous area at the gingival margin where the stainless steel crown obtains its retention.

The enamel and dentin of primary teeth are thinner than in the permanent dentition and the primary molar pulp chamber is comparatively large. (2) The mesial pulp horn extends toward the contact point area and the distal pulp horn lies under the center of the occlusal surface. Because the dentin is relatively thin it can be difficult to achieve adequate retention in a proximal cavity even when the cavity is only moderately deep. (3)

Longevity of Primary Molar Restorations

A number of authors have compared longevity of amalgam and stainless steel crown restorations in primary teeth. Braff in 1975 (4) found that 88% of amalgams placed in children needed follow-up treatment compared with 30% of the stainless steel crowns. Dawson et al (5) found that for restorations placed in children of average age 5.5 years, 58% of Class I and 70% Class II amalgams in primary molars needed further treatment before eight years old. However, only 11% of stainless steel crowns needed further treatment. The authors concluded that stainless steel crowns are the treatment of choice for primary molars, especially for multi-surface lesions in the first primary molar.

Holland et al (6) found the median survival time for amalgams in the primary molars of three-year-old children was 11 months, and for seven- and eight-year-old children was 4 months. More recently, Roberts and Sherriff (7) found from evaluating patient records in a pedodontic practice, that the replacement rate for Class I and II amalgams at five years in primary molars was 15.4% compared with 2.8% for stainless steel crowns over the same time period.

Eriksson et al (8) compared 104 crowned primary molars with 104 control teeth; 20 of the control teeth being sound and 84 having amalgams placed. The teeth were monitored over time until exfoliation. Initial treatment involved 107 visits to place 104 crowns and 85 visits to place 84 amalgams. Only 21% of the crowned teeth needed further treatment compared to 77% of the amalgam restored teeth. The additional time spent on further treatment for the amalgam group was 9.5 hours more than for the crown group.

In a 1996 study performed by Einwag and Dünninger, it was concluded that stainless steel crowns proved far superior to multi-surface amalgam restorations with respect to both lifespan and replacement rate. (9) The study comprised 106 patients, 66 of whom were traced and included in the final evaluation. Approximately 83% of the stainless steel crowns had a lifespan of at least 8 years. Amalgam restorations survival rate after only one year was 80%. After 4.5 years, the rate was below 40%. In contrast, the survival rate for the stainless steel crowns at 4.5 years was more than 90%. The difference in replacement rate between the stainless steel crowns and amalgams was highly significant. Only 4 of 66 crowns (6%) had to be replaced compared to 38 of 66 amalgam restorations (58%).

Indications for Use

1. Where an amalgam is likely to fail in a primary molar, such as a Class II cavity where the proximal box is extended beyond the anatomic line angles. (10, 11)
2. Extensive caries damage involving multiple surfaces of the tooth.
3. Extensive decalcification around an already restored tooth where there is a high risk of recurrent caries. (10)
4. For space maintenance.
5. After pulp therapy or endodontic procedures on a primary molar.
6. Developmental defects such as amelogenesis imperfecta, dentinogenesis imperfecta, or hypocalcified teeth. (11, 12) Stainless steel crowns are useful as an "emergency" measure to reduce the sensitivity of these teeth and allow the patient to eat and maintain effective oral hygiene measures.

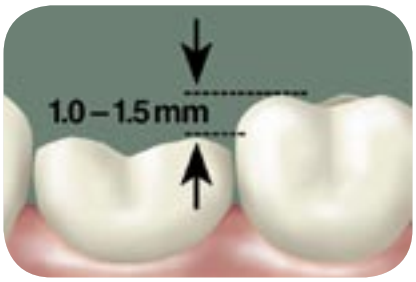
Consider alternative treatment if:

1. Patient is unable to cooperate with treatment.
2. Primary tooth is approaching exfoliation; i.e., X-ray shows over half the primary tooth root resorbed.

Technique for Use

Effective local anesthetic should be given as the preparation will extend subgingivally.

Occlusal reduction is carried out to obtain clearance of approximately 1.5 mm **(fig. 3)**.



(fig. 3)

If a rubber dam has been placed, the preparation can be compared with the occlusal height of the neighboring teeth. The mesial and distal contact points are cleared and a smooth taper from occlusal to gingival should be obtained that is free of ledges or shoulders **(fig. 4)**.

(fig. 4)

All caries are removed and the line angles rounded off. Often half or more of the tooth preparation is completed simply by caries removal. It is possible to lose a large amount of the clinical crown, yet still be able to fit a stainless steel crown.

Stainless steel crowns are not close fitting, therefore the preparation does not have to be precise. The gingival finishing line should be a feather edge with no ledges or steps detectable. A reasonable taper mesially and distally will help to achieve this. If a step or ledge is present **(fig. 5)**, the operator will have difficulty seating the crown and may be tempted to trim it unnecessarily.

(fig. 5)

No preparation is usually needed on the buccal or lingual surfaces of primary molars except where there is a pronounced mesio-buccal convexity as seen on some primary first molars. The stainless steel crowns are flexible enough to spring over minor contours. (10)

When multiple crowns are to be placed in the same quadrant, the adjacent proximal surfaces of the teeth being prepared should be reduced slightly more than usual. This will make multiple crown placement easier. (10)

The finishing line should be approximately 1 mm below the gingival margin.

The correct size crown is selected by measuring the mesio-distal width between the contact points of the neighboring teeth with calipers. If teeth are missing, the mesio-distal width of the matching tooth in the opposite arch can be measured. It is advisable to choose the smallest crown that will fit. If the crown is too large it is very time consuming to adjust it to obtain good retention.

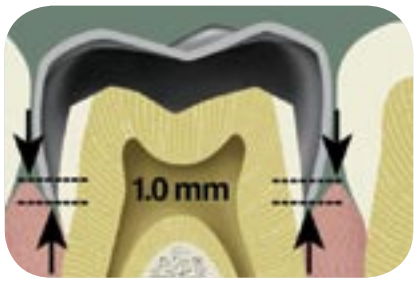
When fitting a crown for a second primary molar, where the first permanent molar has not yet erupted,

care must be taken when measuring the available mesio-distal dimension for the crown. If the stainless steel crown encroaches on the space needed for eruption of the permanent molar, its eruption path may be distorted.

To seat the crown on a prepared tooth it is placed lingually and rolled over the preparation to the buccal margin.

A crown will often make an audible "click" as it springs into place over the gingival undercut area. Firm pressure is usually needed to seat the crown.

The marginal gingiva will blanch somewhat with a well fitting crown as it seats. The crown margin should be located approximately 1 mm subgingivally both to give retention and a good cement seal **(fig. 6)**.



(fig. 6)

If excess gingival blanching is seen the crown will need to be trimmed. It may be helpful to scribe a line on the crown along the gingival contour with a sharp explorer. The crown can then be trimmed to 1 mm below the scribe line.

The occlusion should be checked and the crown removed with a sharp excavator.

Trimming can be done with crown scissors **(fig. 7)** (3M ESPE 801-202) or with an abrasive wheel. Some operators consider the latter to give a better result than cutting with crown scissors. (13, 14)

(fig. 7)

After trimming, the crown will have a larger cervical opening. It must be crimped to regain its retentive contour.

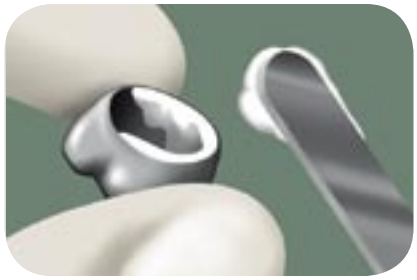
3M ESPE crimping pliers (800-421) **(fig. 8)** are recommended for ease and efficiency in crimping stainless steel crowns; however, conventional orthodontic pliers can also be used.

(fig. 8)

Once the adjustments are completed the crown margins should be thinned slightly and smoothed with a large "heatless" stone. Final polishing can be done with a rubber wheel.

The crown is now ready to be cemented. Resin-modified glass ionomer, polycarboxylate or zinc phosphate cements can be used. RelyX™ Luting Plus Cement is recommended as an easy to use fluoride releasing cement.

Stainless steel crowns are not a tight fit except at the margin, so a larger than normal volume of cement should be mixed **(fig. 9)**.



(fig. 9)

As the crown is seated over the tooth excess cement should be seen to flow out from the margins. If excess cement is absent from the margins, it is an indication of an inadequate volume of cement which may lead to early failure of the crown. Excess cement is removed with a scaler or explorer, and knotted dental floss is used interproximally. (10, 12)

Finally the crown is checked for occlusion. The primary dentition has great ability to adjust to a slightly opened bite of 1 mm or so over a few days with no adverse effect. (12) The patient should be advised that there may be some temporary gingival discomfort when the local anesthetic wears off.

Stainless steel crowns can be adapted as useful space maintainers by soldering a loop of stainless steel wire to the buccal and lingual surfaces. Once space maintenance is completed, the soldered wire loop can be removed leaving the stainless steel crown in place until the primary molar is shed. The alternative of using an orthodontic band and soldered wire loop as a space maintainer may give rise to secondary caries if the cement beneath the band washes out.

Placement of 3M ESPE stainless steel crowns is an economical and reliable treatment for primary molars giving excellent long-term function and patient comfort. The placement technique is quickly mastered. Crowns can often be fitted in less time than would be needed to complete some conventional multi-surface restorations.

Pulpotomy and Pulpectomy

When the marginal ridge of a primary molar is involved in the caries process, it is likely that the pulp is already affected even though there may be no caries exposure. (15) Successful treatment of these teeth involves either a pulpotomy or pulpectomy.

For a pulpectomy, the recommended root filling material is pure zinc oxide powder mixed with eugenol, as this paste will resorb with the roots. Proprietary zinc oxides, which contain radiopaquers, etc., may not be fully resorbed leaving particles in the alveolar bone. It is also important not to instrument through the root apex as this may damage the underlying permanent tooth follicle.

A vital pulpotomy involves removal of tissue from the pulp chamber and treatment of the rest of the pulp. A temporary filling of zinc oxide eugenol is then placed for one week. If after a week the pulp is still bleeding, a pulpectomy should be performed. However, if it remains dry and comfortable, the tooth can be restored.

One alternative technique described by Croll (13) uses a sterile cotton wool pellet, applied under pressure to the pulp stumps, to stop the bleeding. A thick mix of pure zinc oxide eugenol is then placed in the pulp chamber to seal it.

Kopel (16) states that following pulp therapy, a correctly fitted stainless steel crown is the restoration most likely to give an adequate seal eliminating subsequent bacterial contamination caused by microleakage.

3M ESPE Stainless Steel Permanent Molar Crowns

The design of the 3M ESPE stainless steel permanent molar crown closely resembles the anatomy of a first permanent molar **(fig. 10)**. The life-like anatomy of these crowns reduces the amount of adaptation needed when fitting a prefabricated crown.

(fig. 10)

For each permanent molar in the arch there are 6 sizes of crowns, ranging in mesio-distal dimension from 10.7 mm to 12.8 mm, increasing in approximately 0.4 mm increments. The crowns gain their retention mainly from the cervical margin area. The crown margin should be placed just apically to the gingival margin and carefully adjusted to give an accurate fit in this region. Fitting a permanent molar stainless steel crown requires significantly more chairside time than is needed to fit a primary molar crown. (17)

Indications for Use

The 3M ESPE stainless steel permanent molar crown can be used to make a useful long-term provisional restoration for a broken down first permanent molar that has been partially restored and must be kept under observation before construction of a cast restoration. (17) The crowns are useful for restoring the occlusion, and when there are financial considerations regarding the need for a cast restoration, placement of a stainless steel crown may be considered as an economical, medium term option in clinically suitable cases. (18)

Technique for Use

When preparing a permanent molar for a stainless steel crown, future preparation needs for a cast restoration must be considered. The 3M ESPE stainless steel crown allows for a conservative preparation of the tooth to be carried out. The crown gains its retention from the cervical margin area as the crown is fully crimped and festooned at manufacture **(fig. 10)**. The preparation of a tooth for a permanent molar crown is essentially the same as that for a primary molar, but with slightly less tooth tissue removal. It is important that the preparation margins end in a smooth feathered edge.

To prepare the tooth, an occlusal reduction of 1.0 to 1.5 mm should be made. In addition, the preparation should be slightly tapered with the finishing line placed just beneath the level of the free gingiva. The crown margin should subsequently fit just apical to the finishing line. Any sharp line angles are rounded off to ensure that the crown does not bind on seating.

It is helpful to measure the mesio-distal width of the tooth at the proximal contact point before starting the preparation. (18) This will give an accurate idea of the crown size needed.

Alternatively, pre-operative study models can be utilized to give details of crown width and height. (17)

When a stainless steel crown is to be placed on a molar which previously had caries extending subgingivally, the original tooth contour should first be restored with a bonded composite or a resin-modified glass ionomer material, such as 3M™ ESPE™ Vitremer™ Restorative Material. This area can then be included in the preparation for the crown.

The occlusal height of the 3M ESPE stainless steel crown is set at an optimal value to help minimize the amount of adaptation needed to fit the crown. If part or all of the crown margin has to be removed as part of the adaptation of the crown, the margin opening will have been enlarged and retention lost. The margins must be re-crimped to regain retention and to ensure an accurate fit to the prepared tooth **(fig. 11)**.

(fig. 11)

Specialized crimping pliers (3M ESPE 800-417) are available, but it is also possible to use conventional orthodontic pliers for this purpose.

Where crown margins have been trimmed and crimped, these areas must be thinned, smoothed and polished to a high shine using rubber points and rag wheels. The occlusion should be carefully checked and any adjustments made by reducing the preparation.

It is advisable to take a bite-wing radiograph at the final try-in stage, before cementing the crown, to check the marginal fit at the mesial and distal areas. (19) It is often not possible to check these areas simply by probing.

The crown may be cemented with either a resin-modified glass ionomer, polycarboxylate or zinc phosphate cement. RelyX™ Luting Plus Cement is recommended as an easy to use fluoride releasing cement for this procedure. All excess cement should be carefully removed and a piece of knotted dental floss used to remove excess cement interproximally **(fig. 12)**.

(fig. 12)

Most stainless steel crowns are retained for three to four years before a more permanent restoration is placed. There are cases of stainless steel permanent molar crowns being retained for over ten years with minimal problems except occasional perforation of the occlusal surface from wear. (17) In these instances the occlusal surface of the crown can be repaired with a direct restorative such as amalgam or composite.

Summary

The 3M ESPE stainless steel permanent molar crown is a functional and economical restoration. It can give excellent long-term performance and patient comfort without jeopardizing future treatment plans for a permanent cast restoration.

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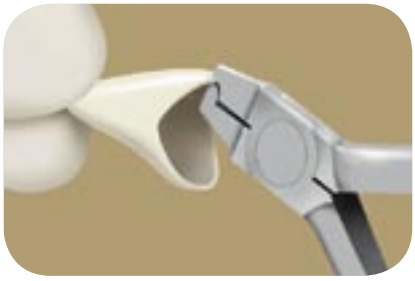
3M™ ESPE™ Polycarbonate Crowns

Temporary or provisional crowns must protect the pulp and vitality of the prepared tooth and help maintain gingival health while restoring esthetics and function. It is also important that the preparation margins, especially those in enamel, are protected and the tooth is stabilized in the arch. (1, 2)

The provisional crown should be easy to adapt to the prepared tooth and easy to remove when needed.

3M ESPE Polycarbonate Prefabricated Crowns have been designed to meet these criteria. They are a time saver as they are easy to trim with dental burs or crown scissors, and can then be easily adjusted with pliers **(fig. 1)**.



(fig. 1)

The crowns are made of a polycarbonate resin incorporating microglass fibers which not only permit crown adjustment with pliers but also give these crowns good durability and strength. 3M ESPE polycarbonate crowns offer good protection to the prepared crown margins as well as maintaining tooth function.

3M ESPE polycarbonate crowns have good anatomic form and esthetics in a wide range of sizes for incisors, canines and premolars. They are manufactured in a universal shade which is translucent enough to allow shade adjustment by the type of lining material used. The crowns have a smooth surface finish for patient comfort and to help minimize plaque build-up.

Technique for Use

1. The correct size crown is selected by measuring the mesio-distal width at the level of the contact point of the prepared tooth, or by measuring the width of the contra-lateral tooth in the same arch.
2. The cervical crown margin is trimmed to the required contour with crown scissors or by grinding with a trimming bur or stone. Care must be taken to ensure that the crown seats onto the preparation margins.
3. The crown is then lined with acrylic or composite material **(fig. 2)**.

(fig. 2)

If cold cure acrylic is to be used, the material should be poured into the crown after mixing and, once the "dough" stage is reached, seated over the preparation. Prior to seating the crown, the preparation and surrounding gingiva should be lubricated with water or saliva.

As the acrylic starts to set, the crown should be removed from the preparation and reseated a number of times. Removal of the crown during polymerization of the acrylic resin helps to dissipate heat build-up from the exothermic reaction and prevent locking into undercuts.

Lining a polycarbonate crown will ensure good marginal adaptation to the preparation. Cold cure acrylics chemically bond with polycarbonate crowns. Composite materials need some retention, by mechanically roughening the inside crown surface. A chemical bond to composite can be obtained by priming the fitting surface of the polycarbonate with methyl methacrylate liquid.

4. After the lining material has set, the crown is removed from the tooth and the margins carefully trimmed and finished. It is important that an accurate fit is obtained at the preparation margin to help maintain gingival health. A bulky subgingival fit may lead to gingival recession prior to fitting the permanent crown **(fig. 3)**.

(fig. 3)

5. After checking the fit and occlusion, the polycarbonate crown should be cemented using a proprietary temporary luting cement **(fig. 4)** and the excess removed **(fig. 5)**. Zinc oxide eugenol cements will chemically bond with acrylics and polycarbonate, other cements act by mechanical retention. Retention can be enhanced by placing grooves or notches on the inside of the crown.

(fig. 4)

(fig. 5)

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3M™ ESPE™ Iso-Form Crowns

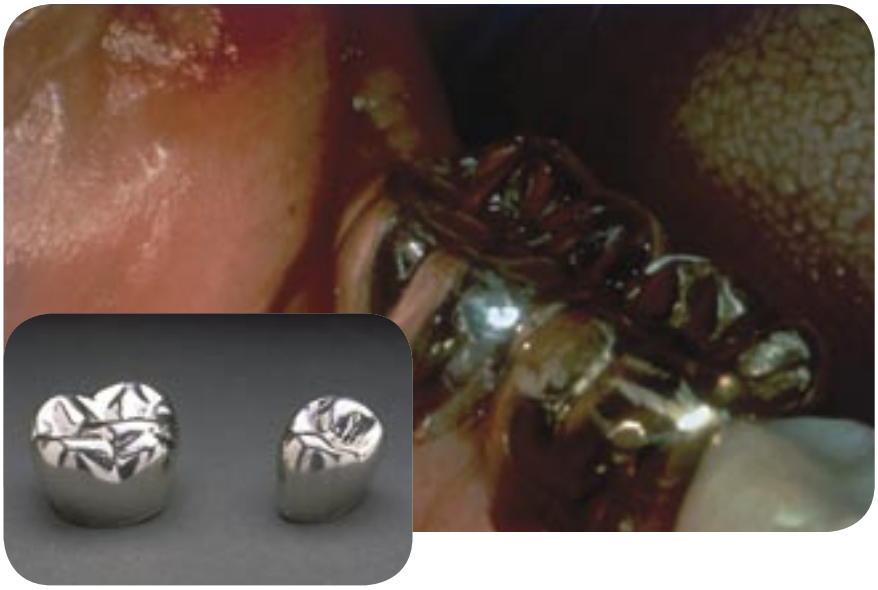
Introduction

During the time interval between tooth preparation for a crown and cementation of the permanent restoration, the prepared tooth must be given temporary coverage. Temporary crowns should protect vital dentin and pulp and maintain individual tooth position and function in the arch. This is accomplished by restoring anatomic form and establishing good contact points with neighboring teeth and occlusal contacts with opposing teeth. The crown should be non-irritating to the gingiva and help maintain gingival health by permitting normal oral hygiene procedures. (1, 2)

3M ESPE Iso-Form Temporary Crowns are available in both molar and premolar sizes. They provide a positive contact point with either natural or artificial neighboring teeth, allowing the use of dental floss and other oral hygiene procedures to be continued during the period of temporization. The smooth, burnished surface of the crown gives good compatibility with gingival tissues.

3M ESPE Iso-Form temporary crowns have anatomic contour and occlusal surface. The crown margin is constricted and when placed over the prepared tooth will stretch to closely conform to the preparation margin. The crown margin is easy to burnish and can be quickly worked to conform to the tooth preparation without the alloy buckling or wrinkling.

The crowns are made from a high purity tin-silver alloy that is soft and ductile. This not only gives 3M ESPE Iso-Form crowns their particular degree of ductility, but also the advantage that a crown can be stretched or burnished to alter the



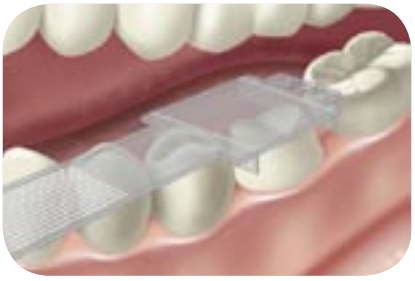
shape. The accurate anatomy of these crowns and their ability to automatically stretch to fit the preparation margins make them easy to place and time saving in use.

Technique for Use

1. The correct size crown is selected by first measuring the interproximal space available. A plastic measuring gauge for this purpose is included in the crown kit. The gauge has 3 pairs of tapering blades for 3 ranges of measurements, i.e., 9 to 10 mm, 10 to 11 mm and 11 to 12 mm. The blades taper by 1 mm.

A set of gauge blades is placed over the occlusal surface of the preparation by sliding the gauge from the lingual towards the buccal until the blades wedge on the contact points of the neighboring teeth **(fig. 1)**.

The point at which the gauge wedges relative to its central 0.5 mm mark



(fig. 1)

establishes the dimension of the interproximal space and the correct size crown can be selected.

The plastic gauge can be disinfected after use by immersion in a dental disinfectant solution.

An alternative method is to use metal measuring calipers. A direct measurement of the mesio-distal dimension across the prepared tooth can be taken or the mesio-distal space can be measured from a radiograph. (3)

2. If tooth preparation has been completed with a finishing line or chamfer margin (rather than a shoulder), the selected 3M ESPE Iso-Form crown is placed over the preparation and gently seated **(fig. 2)**. As the crown seats it will adapt to the contact point area and stretch over the finishing line.

(fig. 2)

If the preparation margin has been finished as a shoulder, the 3M ESPE Iso-Form crown should first be stretched slightly on the plastic stretch block **(fig. 3)** and then seated over the tooth preparation as described above **(fig. 4)**. Care should be taken not to over-expand the crown on the stretch block.

(fig. 3)

(fig. 4)

3. For enhanced strength and fit, the crown can be lined with provisional acrylic or resin material. If this option is chosen, the crown margins should be trimmed. To trim the margin accurately it may be helpful to scribe a line on the crown, using a sharp explorer to mark the desired contour. The crown can then be trimmed back to this line using crown scissors **(fig. 5)**.

(fig. 5)

If any distortion of the crown occurs during scissor trimming, the crown cervical contour can be restored by placing the crown on the stretch block. The plastic stretch block can be disinfected after use by immersion in a dental disinfectant solution.

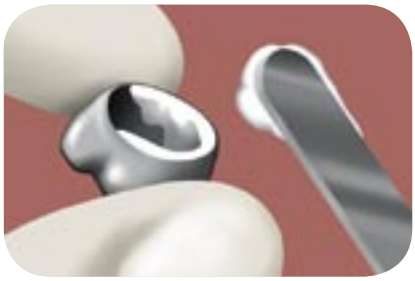
For the chamfer finishing line preparation, the crown margins should be trimmed to be level with or slightly short of the finishing line. For the shoulder preparation, the crown margin should be trimmed just apical to the shoulder line and burnished to the preparation margin.

4. After trimming, the crown is re-tried in the mouth. The patient is then asked to close **(fig. 6)** and make lateral excursions. The ductile alloy of the occlusal surface will deform to adjust to the bite.

(fig. 6)

5. The preparation, neighboring teeth and surrounding soft tissues are lubricated with water or saliva.
6. Cold cure acrylic is mixed and the crown filled while the acrylic is in a runny phase. Once the dough stage has been reached, the crown is seated onto the preparation and the patient asked to close in centric occlusion to seat the crown fully. The occlusal surface of the crown will deform to adjust to the bite. Excess acrylic should be removed with an explorer. For a shoulder preparation, the crown margins should be burnished down to conform to the tooth contour while the acrylic is setting.
7. Once the acrylic reaches the flexible stage (i.e., has started to harden), the crown is carefully removed from the tooth and reseated a few times until the acrylic has completely set. Care must be taken not to distort the crown on removal and reseating.
8. On removal of the crown after the acrylic has set, an impression of the preparation margins should be seen. The margin area can be outlined with a pencil and the crown is trimmed back to this line using a steel or tungsten carbide bur. The crown is re-tried in the mouth and the occlusion checked and adjusted if needed. If there are areas where the crown margin is short on the preparation, a further acrylic reline may be necessary.
9. Final shaping and smoothing can be done with 3M™ ESPE™ Sof-Lex™ Discs and rubber wheels.

10. The crown is now ready to be cemented. Any proprietary temporary cement can be used. For long-term cementation (when this is clinically necessary), it is advisable to avoid using a zinc oxide eugenol cement as the eugenol may soften the acrylic leading to loss of retention **(fig. 7)**.



(fig. 7)

After the cement has set, excess cement is removed and a knotted length of dental floss can be used to clean any excess cement from the interproximal area **(fig. 8)**. Finally, the occlusion should be re-checked before dismissing the patient.

(fig. 8)

Special Applications

Some crown preparations for posterior teeth involve minimal occlusal reduction. (1) In these cases, the 3M ESPE Iso-Form crowns are easily adapted to the reduced occlusal space to harmonize with the bite, while still retaining the strength of the metal alloy supported by the acrylic relining.

Teeth prepared for full coverage crowns may often have short clinical crowns. (1) 3M ESPE Iso-Form temporary crowns can be useful for these patients, as the number of sizes available combined with the ductility of the tin-silver alloy allows quick crown adaptation to fit the preparation.

Summary

3M ESPE Iso-Form temporary crowns have a life-like tooth anatomy. The tin-silver alloy used in their manufacture allows the crown wall and margin to stretch to conform closely with the cervical area of the tooth preparation. The ductility of the crowns allows for easy adjustment to accommodate minimal occlusal space between the preparation and opposing arch. Reliable protection to the preparation over the temporization period is obtained.

The crowns give positive contact points between the preparation and neighboring teeth. This stabilizes the tooth in the arch and allows oral hygiene procedures to continue while the temporary crown is in place, which helps to maintain optimal gingival health.

The crowns are also time saving as they can be quickly stretched, formed and burnished to the tooth preparation obtaining an accurate fit.

References

1. Kantorowicz GF, ed. Inlays, Crowns and Bridges: A Clinical Handbook. 5th ed. Oxford, England: Wright; 1993.
2. Elderton RJ, ed. The Dentition and Dental Care, Vol. 3. Oxford, England: Heinemann; 1990.
3. Nayyar A, Edwards WS. Fabrication of a single posterior intermediate restoration. J Prosthet Dent 1978;39: 688–671.

Other 3M™ ESPE™ Crowns

3M™ ESPE™ Gold Anodized Crowns

3M ESPE Gold Anodized crowns are made from a medium-hard aluminum for durability and function. Gold anodization eliminates metallic taste and galvanic shock for greater patient comfort.

The features of 3M ESPE gold anodized crowns are:

- Medium-hard aluminum base that will not easily deform and minimizes bite-through.
- Pretrimmed gingival contour for minimal trimming.
- Parallel wall design to save time by minimizing belling of the crown.
- Wide assortment of sizes including bicuspids and molars.

3M™ ESPE™ Unitek™ Stainless Steel Crowns

3M ESPE Unitek Stainless Steel crowns offer over 20 years of proven successful clinical use. The 3M ESPE Unitek crown line includes primary anterior, first and second primary molars, bicuspid and permanent molar crowns.

The features of 3M ESPE Unitek stainless steel crowns are:

- Shallow occlusal anatomy requiring less occlusal reduction.
- Pretrimming to optimum length and contour.
- Parallel walls to provide broad, flat contact points for easy fitting.
- Thick occlusal surface to help prevent bite-through.

3M™ ESPE™ Strip Crowns

Strip crown forms simplify composite work for pediatric anterior restorations. Trimmed and filled with restorative materials, they automatically contour the restorative material to match natural dentition. They strip off easily, leaving a smooth surface. They are ideal for both chemical and photo curing composites.

The features of 3M ESPE strip crowns are:

- Thin interproximal walls.
- Anatomically shaped construction to match natural contours.
- Palmer notation on each crown tab for easy identification.
- Sufficient strength for easy handling.

Ordering Information

3M™ ESPE™ Stainless Steel Crowns

Primary Molars

There are 48 crown sizes available in the 3M ESPE stainless steel primary molar crown range.

Crown Shape	*Number of sizes available*	*Width range mm*
Upper 1st primary molars	6	7.2 to 9.2
Upper 2nd primary molars	6	9.2 to 11.2
Lower 1st primary molars	6	7.3 to 9.3
Lower 2nd primary molars	6	9.4 to 11.4

Kits

ND-96: Intro kit - 96 crowns Set box only: ND-000

Permanent Molars

There are 24 crown sizes available in the 3M ESPE stainless steel permanent molar crown range.

Crown Shape	*Number of sizes available*	*Width range mm*
Upper 1st and 2nd permanent molars	6	10.7 to 12.8
Lower 1st permanent molars	6	10.8 to 12.8

Kits

PO-96: Intro kit - 96 crowns Set box only: PO-000

3M™ ESPE™ Polycarbonate Crowns

There are 60 crown sizes available in the 3M ESPE polycarbonate molar crown range.

Crown Shape	*Number of sizes available*	*Width range mm*
Upper central incisors	7	7.7 to 10.1
Upper lateral incisors	6	5.8 to 7.6
Lower incisors	10	4.9 to 6.3
Cuspids	7	7.5 to 9.0
Bicuspids	10	6.2 to 7.5

Kits

C-180: Intro kit - 180 crowns Set box only: C-000

3M™ ESPE™ Iso-Form Crowns

3M ESPE Iso-Form crowns are available in 80 crown sizes for molar and bicuspid forms.

Crown Shape	*Number of sizes available*	*Width range mm*
Upper 1st bicuspid	5	6.4 to 8.5
Upper 2nd bicuspid	5	6.0 to 8.0
Lower 1st bicuspid	5	6.6 to 8.5
Lower 2nd bicuspid	5	6.8 to 9.0
Upper 1st molar	5	10.3 to 12.0
Upper 2nd molar	5	9.0 to 10.5
Lower 1st molar	5	11.1 to 12.4
Lower 2nd molar	5	9.8 to 11.6

Kits

BC-64: Intro kit - 64 bicuspid crowns

MC-64: Intro kit - 64 molar crowns

Set box only: BC-000 Bicuspid
MC-000 Molar

3M™ ESPE™ Unitek™ Stainless Steel Crowns

Primary Molars

There are 80 crown sizes available in the 3M ESPE Unitek stainless steel primary molar crown range.

Crown Shape	*Number of sizes available*	*Width range mm*
Central/Lateral	12	4.2 to 8.0
Upper Cuspids	6	6.2 to 8.2
Lower Cuspids	6	4.8 to 6.8
Upper 1st primary molar	7	6.6 to 9.0
Upper 2nd primary molar	7	8.5 to 11.0
Lower 1st primary molar	7	6.9 to 9.3
Lower 2nd primary molar	7	8.5 to 11.5

Kits

908100: Primary anterior set - 72 crowns Set box only: PA-000

902150: Primary molar set - 112 crowns Set box only: PR-000

Permanent Molars

There are 82 crown sizes available in the 3M ESPE Unitek stainless steel permanent molar crown range.

Crown Shape	*Number of sizes available*	*Width range mm*
Upper 1st and 2nd bicuspids	8	5.6 to 9.1
Lower 1st bicuspids	7	5.7 to 8.6
Lower 2nd bicuspids	7	6.2 to 9.1
Upper 1st and 2nd molars	7	9.4 to 12.5
Lower 1st molars	7	9.9 to 13.0
Lower 2nd molars	5	9.6 to 12.2

Kits

902600: Bicuspid set - 84 crowns Set box only: SB-000

902350: Molar set - 84 crowns Set box only: PM-000

3M™ ESPE™ Gold Anodized Crowns

3M ESPE gold anodized crowns are available in 108 crown sizes for molar and bicuspid forms.

Crown Shape	*Number of sizes available*	*Width range mm*
Upper 1st bicuspid	8	5.6 to 9.1
Upper 2nd bicuspid	8	5.6 to 9.1
Lower 1st bicuspid	7	5.7 to 8.6
Lower 2nd bicuspid	7	6.2 to 9.1
Upper 1st molar	6	9.4 to 11.9
Upper 2nd molar	6	9.4 to 11.9
Lower 1st molar	6	9.9 to 12.4
Lower 2nd molar	6	9.6 to 12.2

Kits

942501: Bicuspid set - 84 crowns

942301: Molar set - 84 crowns

Set box only: GB-000 - Bicuspid
GB-000 - Molar

3M™ ESPE™ Pediatric Strip Crowns

There are 16 crown sizes available in the 3M ESPE pediatric strip crown range.

Crown Shape	*Number of sizes available*	*Width range mm*
Upper central incisors	8	6.0 to 8.1
Upper lateral incisors	8	4.3 to 6.7

Kits

915100: Intro kit - 60 upper centrals
60 upper laterals

Set box only: PS-000

Refills

Each crown size is available in refill boxes of 5 crowns.

3M™ ESPE™ Crown Instruments

3M™ ESPE™ Crown Contouring Plier

Used for enhancing crown form contours to improve interproximal contacts and gingival margins for the 3M ESPE temporary crown forms.

800112: 3M™ ESPE™ Crown Contouring Plier

3M™ ESPE™ Crown Crimping Pliers

Designed to crimp the gingival margin of the 3M ESPE temporary crown forms.

800417: 3M™ ESPE™ Crown Crimping Plier

800421: 3M™ ESPE™ Small Crown Crimping Plier

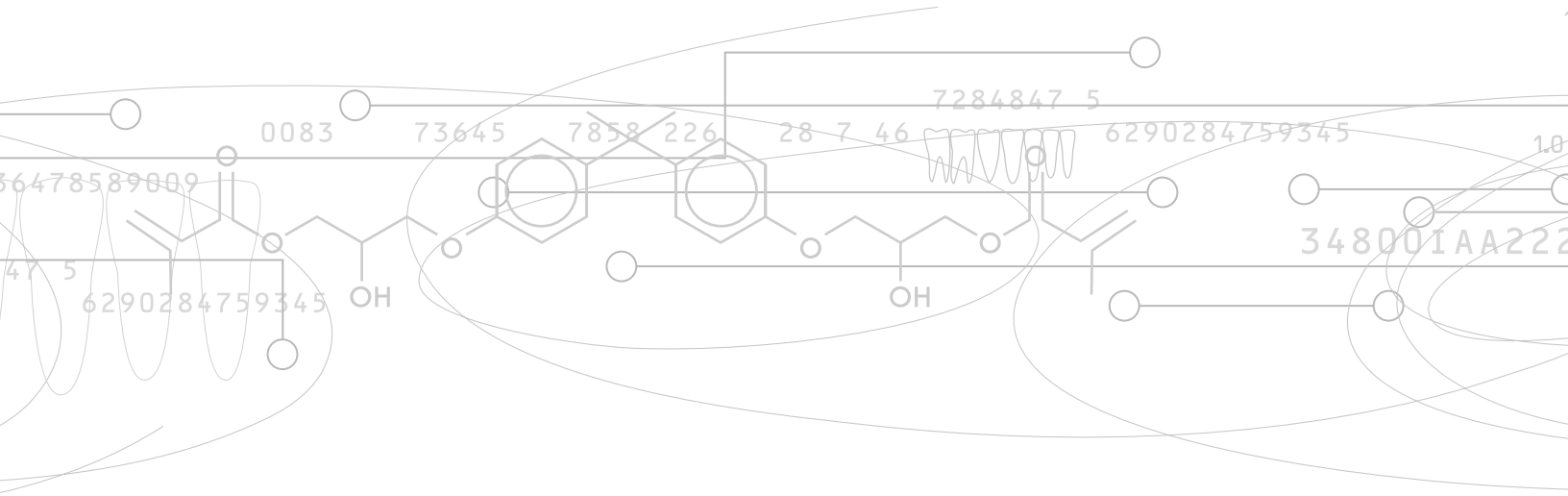
3M™ ESPE™ Crown Scissors

Designed for trimming margins of the 3M ESPE temporary crown forms.

801201: 3M™ ESPE™ Deluxe Straight Crown Scissor

801202: 3M™ ESPE™ Deluxe Curved Crown Scissor

801203: 3M™ ESPE™ Deluxe Festooning Crown Scissor



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