METAL CERAMIC RESTORATIONS

PP- 142- 151
METAL-CERAMIC RESTORATION

ALSO CALLED PORCELAIN FUSED TO METAL RESTORATION (PFM).

CONSISTS OF A CERAMIC LAYER BONDED TO A THIN CAST METAL COPING THAT FITS OVER THE TOOTH PREPARATION.
METAL CERAMIC RESTORATION

COMBINES THE STRENGTH AND ACCURATE FIT OF A CAST RESTORATION WITH THE COSMETIC EFFECT OF A CERAMIC CROWN
METAL-CERMIC RESTORATION

WITH THE METAL SUBSTRUCTURE, METAL-CERAMIC RESTORATIONS HAVE GREATER STRENGTH THAN RESTORATIONS MADE OF CERAMIC ALONE.
METAL-CERMIC RESTORATION

CAN BE USED IN A WIDE VARIETY OF SITUATIONS INCLUDING THE REPLACEMENT OF MISSING TEETH WITH FPD’S
METAL-CERMIC RESTORATION

It is a combination of metal and ceramic, the tooth preparation is also combination of deep reduction facially and shallower reduction lingually. There may be a wing on each proximal surface where the deep reduction ends and the shallower proximal reduction begins.
METAL-CERMIC RESTORATION

ADEQUATE REDUCTION IS ESSENTIAL FOR ACHIEVING A GOOD ESTHETIC RESULT
METAL-CERMIC RESTORATION

Inadequate space for sufficient thickness of ceramic material results in:
1. Poorly contoured restoration affects both esthetics and health of the surrounding gingiva.
METAL-CERMIC RESTORATION

OR

2. The shade and translucency of the restoration will not match the adjacent natural teeth.
ANTERIOR METAL-CERAMIC CROWNS

A UNIFORM REDUCTION OF APPROXIMATELY 1.2 MM IS NEEDED OVER THE ENTIRE FACIAL SURFACE
ANTERIOR METAL-CERAMIC CROWNS

TO ACHIEVE ADEQUATE REDUCTION WITHOUT ENCROACHING UPON THE PULP, THE FACIAL SURFACE IS PREPARED IN TWO PLANES THAT CORRESPOND ROUGHLY TO THE TWO GEOMETRIC PLANES PRESENT ON THE FACIAL SURFACE OF AN UNCUT TOOTH.
ANTERIOR METAL-CERAMIC CROWNS

FACIAL SURFACE IS PREPARED IN A SINGLE PLANE THAT IS AN EXTENSION OF THE GINGIVAL PLANE – INCISAL EDGE WILL PROTRUDE RESULTING IN BAD SHADE MATCH OR OVERCONTOURED “BLOCK”.
ANTERIOR METAL-CERAMIC CROWNS

FACIAL SURFACE PREPARED IN ONE PLANE THAT HAS ADEQUATE FACIAL REDUCTION IN THE INCISAL ASPECT- FACIAL SURFACE OVERTAPERED AND TOO CLOSE TO THE PULP.
ARMAMENTARIUM

1. LAB KNIFE WITH NO:25 BLADE
2. SILICONE PUTTY
3. ROUND – END TAPERED DIAMOND
4. SMALL WHEEL DAIMOND
5. LONG NEEDLE DAIMOND
6. RADIAL FISSURE BUR (ROUNDED SHOULDER)
7. MODIFIED BINANGLE CHISEL
ANTERIOR METAL-CERAMIC CROWNS

SILICONE INDEX IS MADE BEFORE TOOTH PREPARATION.

IN BADLY BROKEN DOWN TOOTH, INDEX IS MADE ON WAXED UP DIAGNOSTIC CAST.
STEP NO 1:

PLACEMENT OF DEPTH ORIENTATION GROOVES - (1.2MM)
THE LABIAL GROOVES ARE CUT IN TWO SETS:

1. ONE SET PARALLEL WITH THE GINGIVAL HALF OF LABIAL SURFACE
2. ONE SET PARALLEL WITH THE INCISAL HALF OF LABIAL SURFACE
ANTERIOR METAL-CERAMIC CROWN PREPARATION
ANTERIOR METAL-CERAMIC CROWN PREPARATION
ANTERIOR METAL-CERAMIC CROWN PREPARATION

STEP NO 2:

INCISAL REDUCTION- (2MM) ROUND -END TAPERED DIAMOND.
ANTERIOR METAL-CERAMIC CROWN PREPARATION
ANTERIOR METAL-CERAMIC CROWN PREPARATION

STEP NO 3:

LABIAL REDUCTION (INCISAL HALF) ROUND- END TAPERED DIAMOND
ANTERIOR METAL-CERAMIC CROWN PREPARATION

STEP NO 4:
LABIAL REDUCTION (GINGIVAL HALF) ROUND-END TAPERED DIAMOND
ANTERIOR METAL-CERAMIC CROWN PREPARATION

STEP NO 5:
LINGUAL REDUCTION
(0.7 -1MM )
SMALL WHEEL DAIMOND
ANTERIOR METAL-CERAMIC CROWN PREPARATION

STEP NO 6:
INITIAL PROXIMAL REDUCTION
LONG NEEDLE DIAMOND
STEP NO 7:
LINGUAL AXIAL REDUCTION ROUND - END TAPERED DIAMOND
ANTERIOR METAL-CERAMIC CROWN PREPARATION

STEP NO 8:

SMOOTHENING THE SHARP ANGLES
ANTERIOR METAL-CERAMIC CROWN PREPARATION
ANTERIOR METAL-CERAMIC CROWN PREPARATION
ANTERIOR METAL-CERAMIC CROWN PREPARATION

FACIAL MARGIN
1. DEEP CHAMFER
2. SHOULDER WITH BEVEL
3. SHOULDER
4. RADIAL SHOULDER
ANTERIOR METAL-CERAMIC CROWN PREPARATION

DEEP (HEAVY) CHAMFER PROVIDES 90-DEGREE CAVOSURFACE ANGLE WITH A LARGE -RADIUS ROUNDED INTERNAL ANGLE
ANTERIOR METAL-CERAMIC CROWN PREPARATION

RADIAL SHOULDER

MODIFIED FORM OF SHOULDER

SMALL RADIUS

INTERNAL ANGLE

WITH 90-DEGREE CAVOSURFACE
ANTERIOR METAL-CERAMIC CROWN PREPARATION

SHOULDER WITH BEVEL

THIS DESIGN CAN BE USED WHERE GINGIVAL ESTHETICS IS NOT CRITICAL
ANTERIOR METAL-CERAMIC CROWN PREPARATION

IMPROVED ESTHETICS

ALL CERAMIC LABIAL MARGIN

THIS ELIMINATES THE METAL COLLAR AT THE FACIOGINGIVAL MARGIN OF THE FINISHED METAL-CERAMIC RESTORATION
ANTERIOR METAL-CERAMIC CROWN PREPARATION
ANTERIOR METAL-CERAMIC CROWN PREPARATION
ANTERIOR METAL-CERAMIC CROWN PREPARATION
POSTERIOR METAL-CERAMIC RESTORATIONS

MAXILLARY PREMOLARS, MAXILLARY FIRST MOLARS AND MANDIBULAR FIRST PREMOLARS ARE ALMOST ALWAYS IN THE APPEARANCE ZONE. MANDIBULAR SECOND PREMOLARS ALSO FALL IN THIS CATEGORY.
POSTERIOR METAL-CERAMIC RESTORATIONS
POSTERIOR METAL-CERAMIC RESTORATIONS

STEP NO 1:
OCCLUSAL REDUCTION FOLLOWED BY FUNCTIONAL CUSP BEVEL
POSTERIOR METAL-CERAMIC RESTORATIONS

STEP NO 2:
DEPTH ORIENTATION GROOVES
POSTERIOR METAL-CERAMIC RESTORATIONS

STEP NO 3:
FACIAL REDUCTION-OCCLUSAL HALF
POSTERIOR METAL-CERAMIC RESTORATIONS

STEP NO 4:
FACIAL REDUCTION
GINGIVAL HALF
POSTERIOR METAL-CERAMIC RESTORATIONS

STEP NO 5: PROXIMAL AXIAL REDUCTION
POSTERIOR METAL-CERAMIC RESTORATIONS

STEP NO : 6
LINGUAL AXIAL REDUCTION
POSTERIOR METAL-CERAMIC RESTORATIONS

STEP NO : 7

AXIAL FINISHING
POSTERIOR METAL-CERAMIC RESTORATIONS

STEP NO : 8

GINGIVAL BEVEL
POSTERIOR METAL-CERAMIC RESTORATIONS

- **Chamfer**: Marginal integrity, Structural durability
- **Lingual axial reduction**: Retention and resistance, Structural durability
- **Wing**: Preservation of tooth structure, Retention and resistance
- **Functional cusp bevel**: Structural durability
- **Planar occlusal reduction**: Structural durability
- **Gingival bevel**: Marginal integrity
- **Shoulder**: Marginal integrity
- **Facial axial reduction**: Retention and resistance, Structural durability
POSTERIOR METAL-CERAMIC RESTORATIONS
POSTERIOR METAL-CERAMIC RESTORATIONS
ANTERIOR FPD
POSTERIOR FPD
QUESTIONS