

# LIBERATOR™

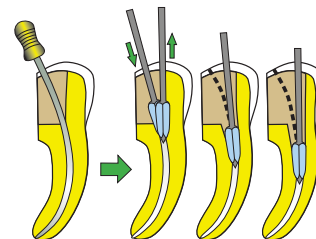
## CROWN-DOWN & STEP-BACK TECHNIQUE

### INITIAL EXPLORATION

After exposing the orifice, explore canal and estimate working length using Miltex Flex-R® hand files (REF 012-14069), Miltex Mark VI apex locator (REF 017-23170) and radiographs. Use Miltex Hi-5™ files (REF 012-26010) to clear obstructions.

### STEP 1: RADICULAR ACCESS (CROWN-DOWN)

Use the Liberator Roane Gates-Glidden (RGG) Drills #1, 2, 3 in succession, irrigating between each size. Speed must be 1,600 RPM.



Molar Access with Liberator RGG System

**1. RGG #1 (118/08 tip/taper)** If canal diameter is small, start with RGG#2, otherwise, advance file into canal 1 to 3mm from the point of first contact. Tilt the instrument away from curvature to create straight-line access.

**2. RGG #2 (94/08 tip/taper)** Advance file 3mm beyond previous depth, and again tilt instrument to gain straight-line access.

**3. RGG #3 (70/08 tip/taper)** Advance files 3mm beyond previous depth, but short of curve. Tip should remain 5 mm short of working length in small canals.

### STEP 2: SHAPING (STEP-BACK)

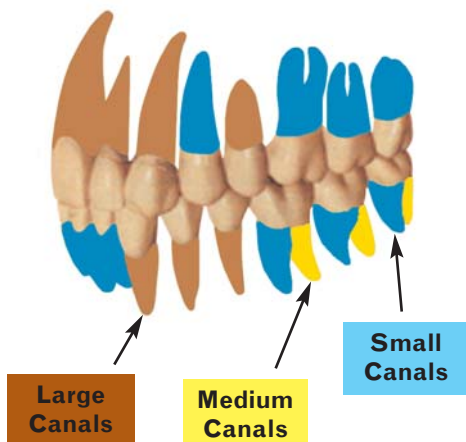
Establish Patency with Hand Files: Use a Flex-R® hand file to establish patency (pre-curve as necessary). Start with Flex-R size that can reach the apex without resistance, and then use the next larger size to establish a clear guide path to the apex. Continue using the next larger size Flex-R hand file until glide path is size #20.

Debride Canal with Liberator Rotary Shaping Files: Estimate canal diameter size (see illustration). Use the sequence below at recommended RPM, irrigating liberally between each size. Always start with .02 taper. Keep file tip engaged in canal using gentle touch and do not dwell for more than 3 seconds. If resistance is met before reaching desired depth, use a smaller tip size until depth is reached - do not force a file into the canal. Pecking is not recommended.

### STEP 3: OBTURATION

Use Miltex® marked gutta percha master cone size equal to the tip size and taper of the file that reaches to **1mm short** of working length. If a tighter seal is desired, use next larger gutta percha tip size with same taper. Use Miltex® condensers, rotary obturators (REF 012-19607) and accessory points to achieve a complete fill.

### Canal Diameter Estimates



Sequence ↓	File Depth Short of WL	Large Canals		Medium Canals		Small Canals		Finished Taper
		File Size (tip/taper)	RPM (000)	File Size (tip/taper)	RPM (000)	File Size (tip/taper)	RPM (000)	
1.	1 mm*	35/02	1.6	30/02	1.6+	25/02	1.6+	.02
2.	2 mm	40/02	1.6	35/02	1.6	30/02	1.6+	.02
3.	3 mm	50/02	1.0	40/02	1.6	35/02	1.6	.02
for .02 taper finish, stop sequence here.								
Optional: for .04 taper finish, continue sequence in order:								
4.	1 mm*	40/04	1.0	30/04	1.0	25/04	1.0	.04
5.	2 mm	50/04	1.0	40/04	1.0	35/04	1.0	.04
Optional: for .06 taper finish, continue sequence in order:								
6.	1 mm*	40/06	1.0	35/06	1.0	30/06	1.0	.06
7.	2 mm	50/06	1.0	45/06	1.0	40/06	1.0	.06

WL = working length or point of apical constriction