LIBERATOR™

NITI ENDODONTIC FILES

FEEL THE SAFETY

FEEL THE CONTROL

Miltex®
Redefining Excellence

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 apex locator and radiographs. Use Miltex Hi-5™ files (REF 012-26010) to clear obstructions.

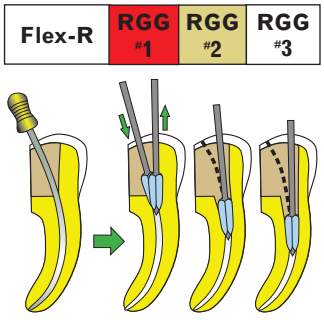
STEP 1: RADICULAR ACCESS (CROWN-DOWN)

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

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.



Molar Access with Liberator RGG System

STEP 2: SHAPING (STEP-BACK)

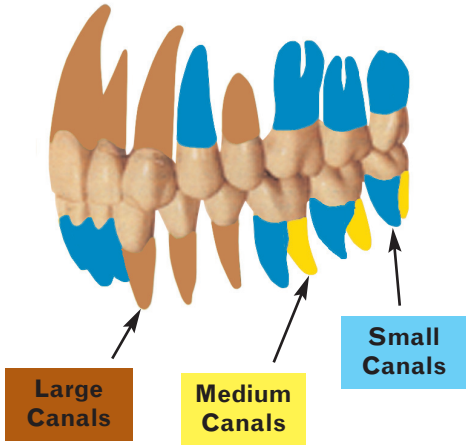
Establish Patency with Hand Files: Use a Flex-R® hand file to establish patency (pre-curve as necessary). Start with Flex-R size that can reach the apex without resistance, and then use the next larger size to establish a clear guide path to the apex. Continue using the next larger size Flex-R hand file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

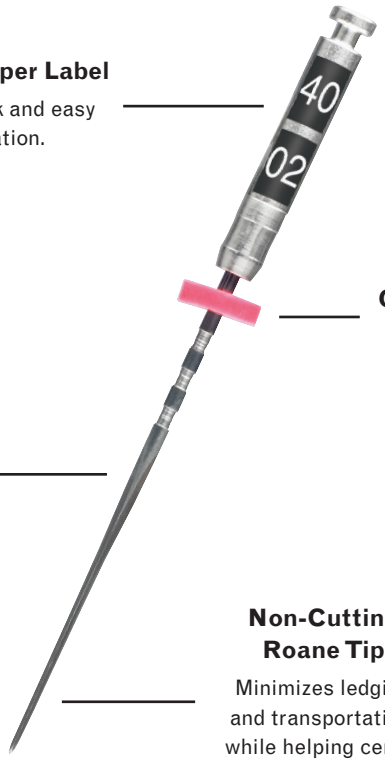
WL = working length or point of apical constriction

THE FIRST ROTARY FILE THAT WILL NOT SELF-THREAD

LIBERATOR™

Liberator™ rotary nickel-titanium endodontic files are the result of years of research and development as well as feedback from leading clinicians in the field of endodontics. The files incorporate a unique straight blade design[1] and manufacturing process[1] that eliminates the traditional helical flutes found on virtually all rotary endodontic files. The result is that Liberator files will not self-thread into a canal. Self-threading is a major contributor to file separation.

Liberator files provide a level of safety, control and effectiveness that is unprecedented in rotary nickel-titanium files. ▲



ISO Tip & Taper Label
Provides quick and easy identification.

1mm Graduation Marks & Rubber Stops
Allows accurate measurement of canal depth.

Straight Blade Design
Eliminates self-threading, reduces torque demand at 1,500-2,000 RPM.

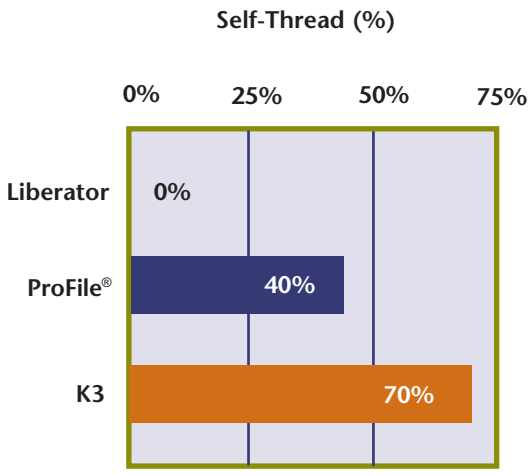
Non-Cutting Roane Tip
Minimizes ledging and transportation, while helping center the file in the canal.

Feel the Safety and Control

The design of the non-cutting Roane tip minimizes ledging and transportation while helping to keep the Liberator file centered in the canal.

Liberator files are designed with straight blades that will not self-thread, unlike helically-fluted files. As proof, a controlled study measured the self-threading rate of Liberator files compared to competitive rotary files as shown here. ▲

Roane Non-Cutting Tip



N = 20 Observations

Feel the Superior Cutting Efficiency

The triangular cross-section and lack of radial lands provide sharp cutting edges and reduce torque demand on Liberator files. Because the files operate at higher RPM's (1,000-2,000) compared to conventional files (300-500), torque is further reduced, thereby decreasing the chance of separation:

$$\text{Torque} = \frac{\text{Work X } 5252}{\text{RPM}}$$

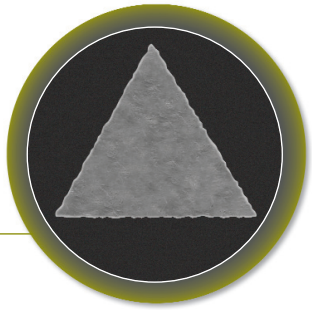


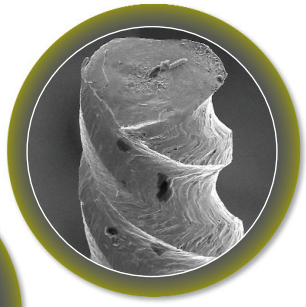
Illustration of Liberator Cross-Section Design

FASTER, EASY-USE

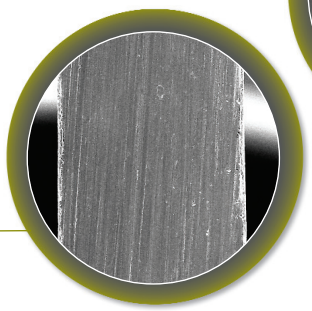
Liberator files rotating at 1,000-2,000 RPM cut dentin faster than conventional rotary files rotating at 300 RPM. This higher speed also provides excellent tactile feel in canals. ▲

See the Difference

The manufacturing process for most conventional helical files leaves micro-cracks that are perpendicular to the file axis. These cracks have been shown to contribute to file separation. A unique manufacturing process for Liberator files eliminates these perpendicular micro-cracks. The process also reduces surface hardening caused by elevated temperatures. ▲



Micro-Cracks on Separated Instrument



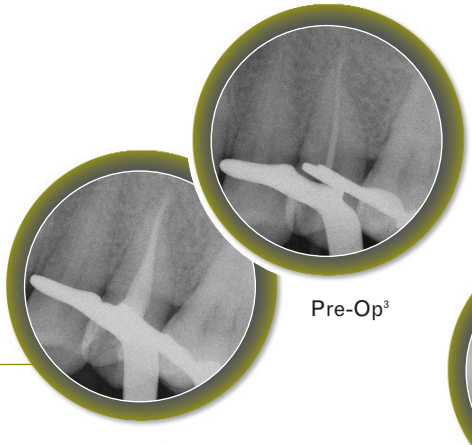
Straight Blade

Experience Quick and Easy Retreatment

Gutta percha points and other obturation materials are easily removed using Liberator files. ▲

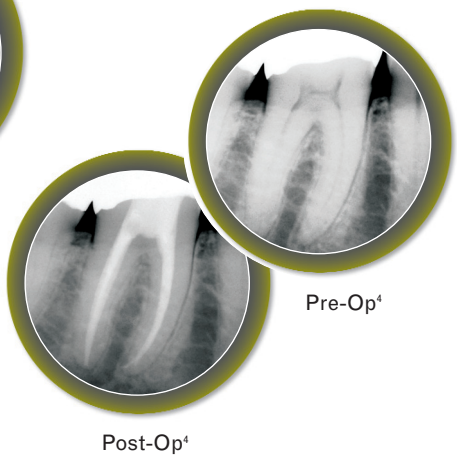
See the Results

Liberator files yield excellent clinical results.



Pre-Op[3]

Post-Op[3]



Pre-Op[4]

Post-Op[4]

THE LIBERATOR PRODUCT LINE

Roane Gates Glidden (RGG) Drills

The Liberator technique starts with Roane Gates Glidden (RGG) drills. These replace conventional Gates Glidden drills because they create a consistent .08 taper in the coronal region. The size 70 RGG is flexible for deeper access.

Tip	Taper	Length	Miltex REF
118 (RGG #1)	.08	13mm	012-28401
94 (RGG #2)	.08	16mm	012-28402
70 (RGG #3)	.08	19mm	012-28403
70-118	.08	Assorted	012-28405

6 files per package

Coronal Flaring Instruments

These instruments of greater taper can be used to further shape the coronal region.

Tip	Taper	Length	Miltex REF
20	.05	19mm	012-28301
30	.06	19mm	012-28302
40	.06	19mm	012-28303
25	.08	19mm	012-28304
60	.08	19mm	012-28305
80	.08	19mm	012-28306
25	.10	19mm	012-28307

6 files per package

Special Packages Available

Introductory Pack (REF 012-28450)
Contains 6 RGG drills, 24 assorted rotary shaping files in .02/.04/.06 tapers, 24 hand files and 6 rotary obturators.

02 Taper Procedure Kit (REF 012-28050)
Contains 12 files - tip sizes 25-70, RGG #2, #3 and 1 Rotary Obturator

Variable Tip/Taper Procedure Kit (REF 012-28451)
Contains 12 files - tip sizes 25-50 in .02/.04/.06 taper, RGG #2, #3 and 1 Rotary Obturator

Technique Tips

Operate Liberator files between 1,000-2,000 RPM

Be sure to create straight line access to canals

Discard files when they appear even slightly twisted

Confluent canals and sharp apical curvatures may require:

- Reduced rotational speed
- Hand filing

Advance shaping files with light touch, "pecking" not required.

Use file lubricant and irrigate between each file.

Apical Shaping Files

Liberator shaping files can be used for almost every canal because the product offering is extensive, including .02, .04 and .06 ISO-sized tapers.

.02 Taper

Tip	REF 21mm	REF 25mm
15	012-28001	012-28015
20	012-28002	012-28016
25	012-28003	012-28017
30	012-28004	012-28018
35	012-28005	012-28019
40	012-28006	012-28020
15-40	012-28007	012-28021
45	012-28008	012-28022
50	012-28009	012-28023
55	012-28010	012-28024
60	012-28011	012-28025
70	012-28012	012-28026
80	012-28013	012-28027
45-80	012-28014	012-28028

6 files per package

.04 Taper

Tip	REF 21mm	REF 25mm
15	012-28101	012-28112
20	012-28102	012-28113
25	012-28103	012-28114
30	012-28104	012-28115
35	012-28105	012-28116
40	012-28106	012-28117
15-40	012-28107	012-28118
45	012-28108	012-28119
50	012-28109	N/A
60	012-28110	N/A
70	012-28111	N/A

6 files per package

.06 Taper

Tip	REF 21mm	REF 25mm
15	012-28201	012-28212
20	012-28202	012-28213
25	012-28203	012-28214
30	012-28204	012-28215
35	012-28205	012-28216
40	012-28206	012-28217
15-40	012-28207	012-28218
45	012-28208	012-28219
50	012-28209	N/A
60	012-28210	N/A
70	012-28211	N/A

6 files per package

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Union Broach

Thompson

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Please contact your dealer or Miltex Customer Service today for additional information.

What is the Miltex Story?

Miltex, Inc. was originally founded as E. Miltenberg, Inc., in New York City in 1890 as a trading company and importer. Miltex, Inc. has established itself as one of the largest and most respected supplier of hand-held surgical instruments in the alternate site market. To ensure that Miltex provides the finest products, Miltex has achieved certification to ISO 9001 and ISO 13485, and Miltex products are also CE certified.

In 2001, Miltex, Inc. acquired the assets of the dental supplies business of Moyco Technologies, Inc., including dental instruments and supplies sold under the Moyco Union Broach and Thompson brand names.

Union Broach has a 40 year history of success in the field of endodontics. Miltex has recently upgraded endodontic research and development capabilities, as well as manufacturing technologies used to manufacture high quality precision endodontic instruments.

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