

Denflex

# Spring Endo File

Innovative Technology for Safety

[www.denflex.kr](http://www.denflex.kr)



# Denflex

## A company specializing in **dental medical devices** with continuous **product research and development**

Since its establishment in 2015, Denflex Co., Ltd. has been developing, producing, and supplying new concept of dental medical devices required in dental medical field.

Based on the differentiated technology of our company, we will continue to introduce new products that lead the innovation in the dental industry.

We have a strong belief that our products will become a game changer in root canal treatment with the capabilities that are differentiated from existing products, such as a shock-absorption function, simple fastening and unfastening method, and functional improvement that prevents fracture.

Denflex strives to create customer value by constantly challenging to develop more convenient, safe and creative dental medical devices in the future and providing the best products and services.

# VISION

OPEN THE FUTURE

“ We will be opening the future with a differentiated technology and solutions. ”

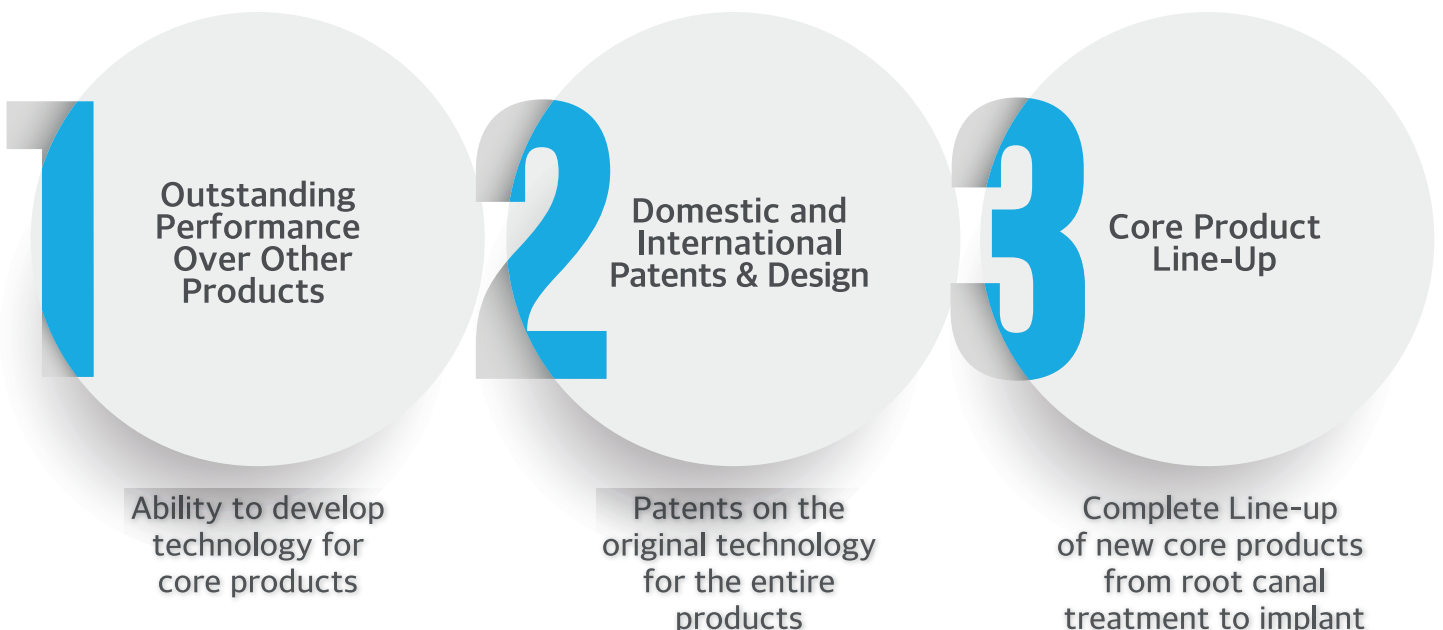
Denflex intends to develop solutions with constant challenges to supply more convenient and safe dental devices so that everyone can enjoy a healthy and pleasant life.

Innovative Technology

Safety

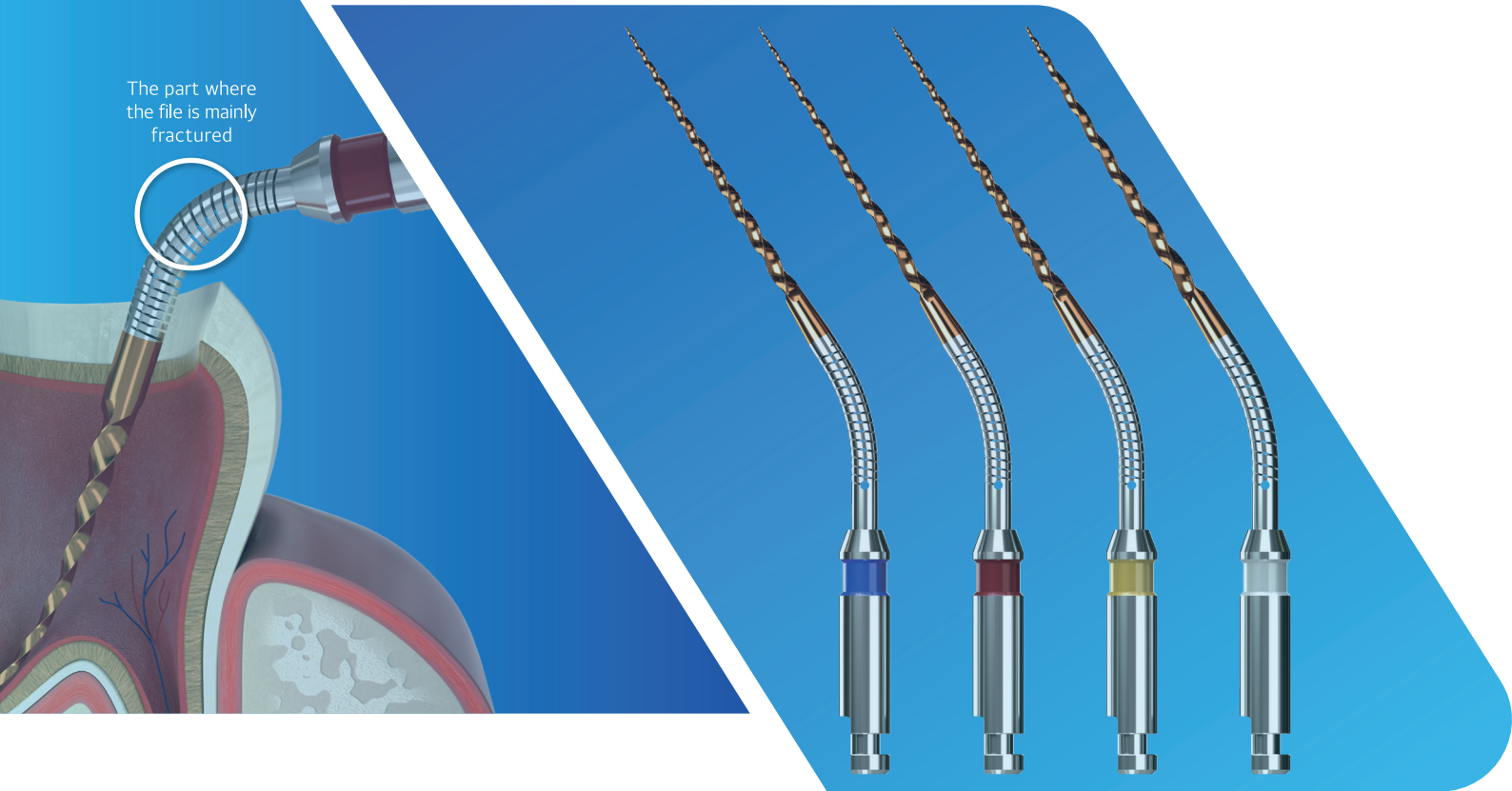
Best Solutions

## Core Competency



# Spring Endo File™

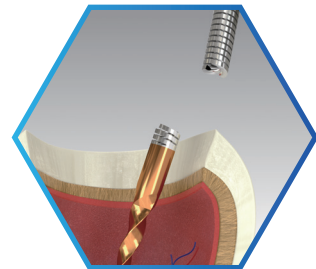
Denflex's Spring Endo File is a NiTi file that **minimizes the fracture** of the file and **maximizes safety** with the **spring structure** for root canal treatment.



## SAFE

Minimize the possibility of fracture in the root canal for its spring structure

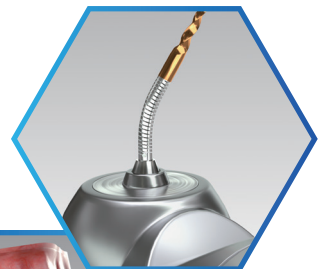
- Load is distributed to the spring and the spring area is fractured when overloaded, making it easier to remove.



## EFFICIENT

Efficient technique with spring structure and heat treatment

- Cutting power is improved with micro-vibration for its spring part.
- 100% rotational torque can be delivered even when the spring part is bent 50-60 degrees.
- Increased durability results in increased usage compared to other endo files.



## COMFORTABLE

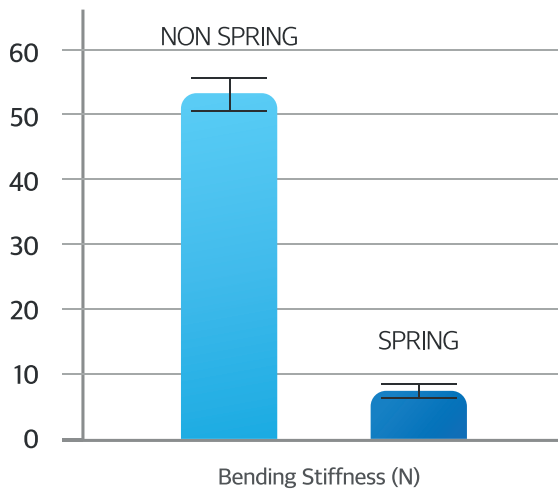
Spring structure provides comfortable treatment for both patients and dentists

- Flexible structure makes it easy to treat patients who cannot open their mouths wide.
- If the root canal is bent away from the central axis of the tooth, there is no need to excessively remove the tooth.





## Unmatched flexibility



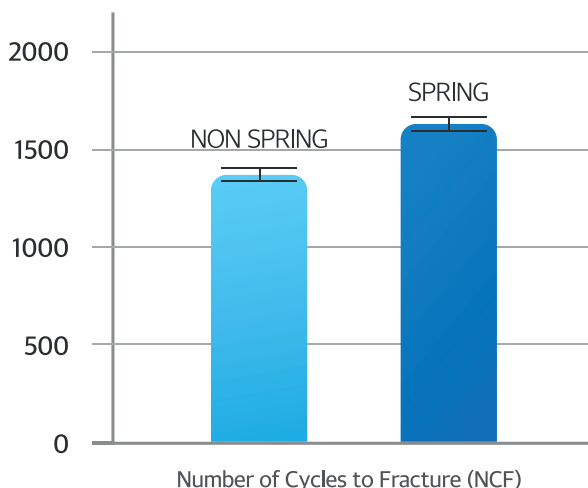
FLEXIBILITY  
**×1.85**

Based on our own experiment results using  
25mm/#25 Spring Endo File

When evaluating the **bending stiffness** of the **file shaft**, **Spring Endo File** has increased **flexibility** by **85%** compared to non-spring products, making it exceptionally **resistant to fracture**. It allows **appropriate bending** when applied with lateral forces such as brushing motion.



## Strong resistance to fracture



RESISTANCE  
**×1.21**

Based on our own experiment results and  
research paper\* using 25mm/#25 Spring Endo File

**In the evaluation of repeated fatigue fracture in a curved root canal, Spring Endo File** presents superior **fatigue fracture resistance** compared to non-spring files. This means an **improvement in the ability to withstand** fractures compared to non-spring products.

\*Sangmi Ahn, Jung-Hong Ha, Sang Won Kwak, and Hyeon-Cheol Kim, **Advancement of Mechanical Properties of Nickel-Titanium Rotary Endodontic Instruments by Spring Machining on the File Shaft**, Materials 2020, 13, 5246

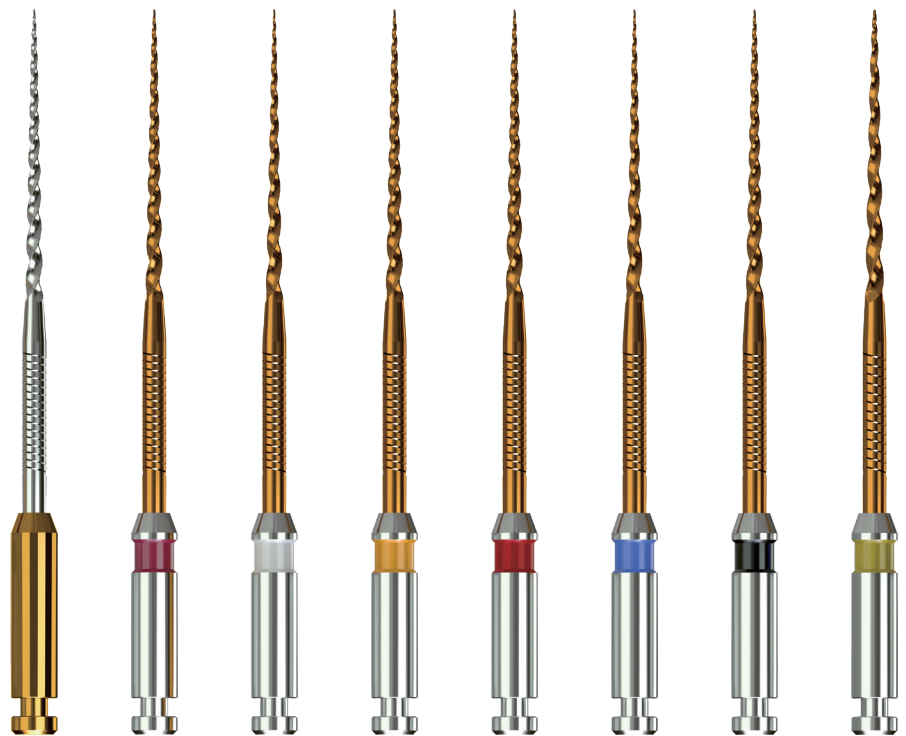
# Product Reference

**Package**



6 files of the same size / 1 package

**Cross section**

## Spring Endo File™ Heat treated NiTi ENDODONTIC file

| ISO Size | 23mm                               |                                    | 25mm                               |                                    |
|----------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
|          | Forward                            | Reverse                            | Forward                            | Reverse                            |
| ○ PATH   | SFPATHHL23#00F                     |                                    | SFPATHHL25#00F                     |                                    |
| ● 10     | SFTG6HL23#10F-S<br>SFTG6HL23#10F-B | SFTG6HL23#10R-S<br>SFTG6HL23#10R-B | SFTG6HL25#10F-S<br>SFTG6HL25#10F-B | SFTG6HL25#10R-S<br>SFTG6HL25#10R-B |
| ○ 15     | SFTG6HL23#15F-S<br>SFTG6HL23#15F-B | SFTG6HL23#15R-S<br>SFTG6HL23#15R-B | SFTG6HL25#15F-S<br>SFTG6HL25#15F-B | SFTG6HL25#15R-S<br>SFTG6HL25#15R-B |
| ● 20     | SFTG6HL23#20F-S<br>SFTG6HL23#20F-B | SFTG6HL23#20R-S<br>SFTG6HL23#20R-B | SFTG6HL25#20F-S<br>SFTG6HL25#20F-B | SFTG6HL25#20R-S<br>SFTG6HL25#20R-B |
| ● 25     | SFTG6HL23#25F-S<br>SFTG6HL23#25F-B | SFTG6HL23#25R-S<br>SFTG6HL23#25R-B | SFTG6HL25#25F-S<br>SFTG6HL25#25F-B | SFTG6HL25#25R-S<br>SFTG6HL25#25R-B |
| ● 30     | SFTG6HL23#30F-S<br>SFTG6HL23#30F-B | SFTG6HL23#30R-S<br>SFTG6HL23#30R-B | SFTG6HL25#30F-S<br>SFTG6HL25#30F-B | SFTG6HL25#30R-S<br>SFTG6HL25#30R-B |
| ● 40     |                                    |                                    | SFTG6HL25#40F-S<br>SFTG6HL25#40F-B | SFTG6HL25#40R-S<br>SFTG6HL25#40R-B |
| ● 50     |                                    |                                    | SFTG6HL25#50F-S<br>SFTG6HL25#50F-B | SFTG6HL25#50R-S<br>SFTG6HL25#50R-B |

# Tips for Using

## **When using it for the first time, position the tip on the orifice and rotate it.**

It is convenient to rotate the heated spring file suitable for curved root canals after placing the tip on the orifice considering the characteristics of the material.

For those who are familiar with it, it may be more convenient to find the orifice in rotation, and especially #10 or #15 File is recommended.

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## **Cutting force is best at RPM 300-450 & Torque 1.0-2.0 N.m.**

If you feel that the cutting power is insufficient, raise the RPM/Torque by one level.

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## **Direction of rotation: DFS clockwise / DFSR counterclockwise**

You can rotate DFS clockwise and DFSR counterclockwise among the provided Spring Endo Files.

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## **Non-heat treatment: Pseudoelastic properties**

## **Heat treatment: Shape memory alloy without pseudoelastic properties**

Heated products return to their original shape when heating it with hot water or dryer

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## **Do not apply lateral pressure and downward pressure when rotating in the root canal!**

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## **Please administer the pre-operational test only on natural teeth!**

Do not test on Resin Block.

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## **When filing in canal, lift the file slightly to the top for better cutting performance!**

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## **Remove cutting residues from the blade during usage!**

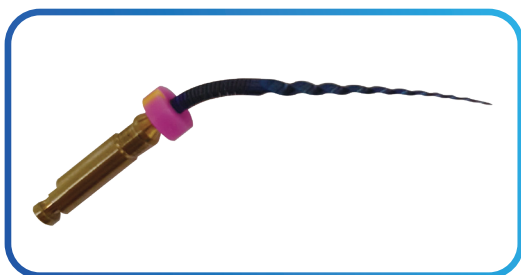
Take the file out of the canal while using the file and remove the cutting residues from the file blade. This will help to maintain the stable cutting performance.

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## **Please use it after expanding the orifice!**

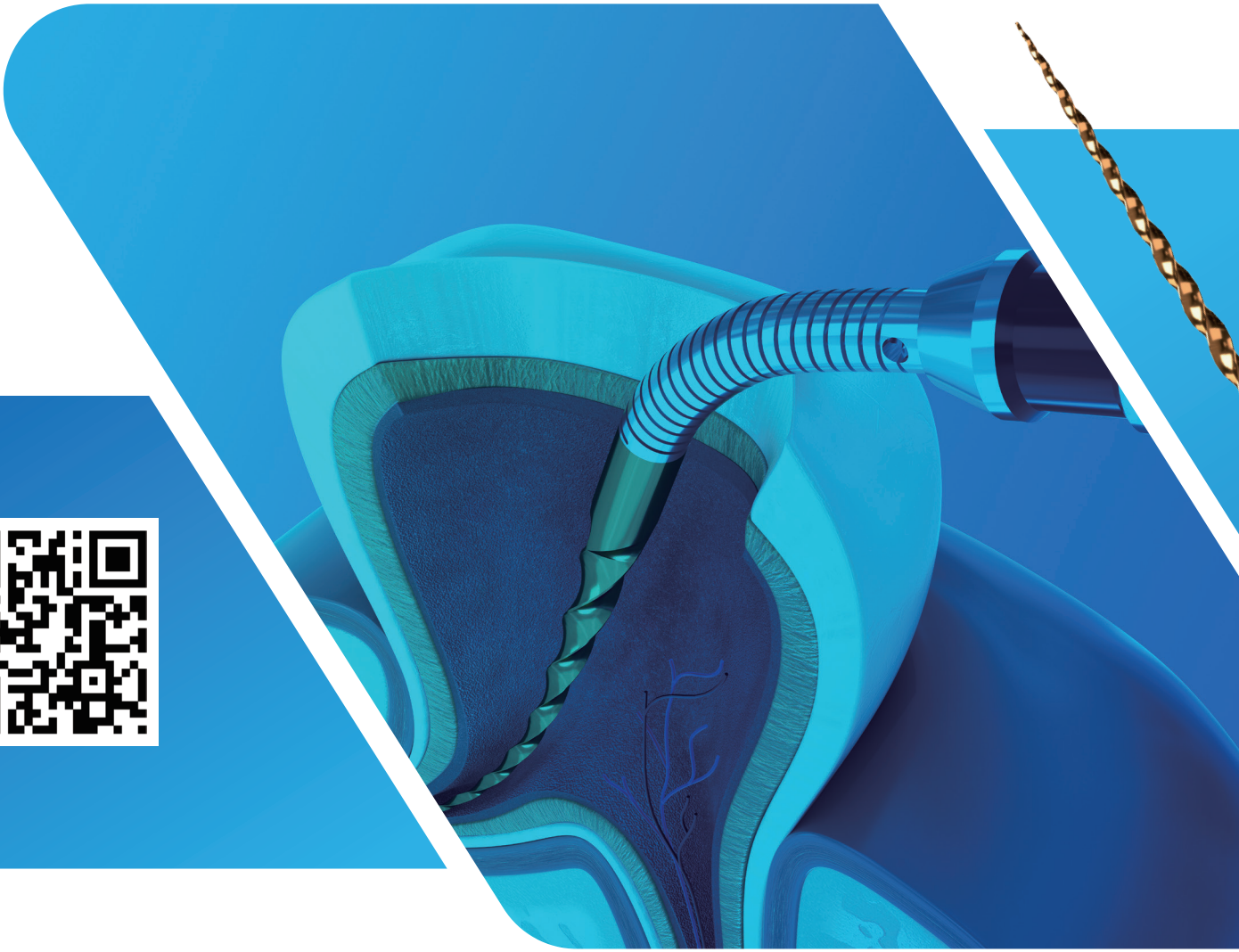
When used directly without orifice expansion, the tip 7-8mm part of the file is sometimes forced by the canal, and even the file used for the first time may break immediately.

# Spring Endo File Hi Plus (NEW, Contact DENFLEX)



Spring Endo File Hi Plus is an optimized file for the treatment of patients with less open mouth and maxillary molar teeth because the shaft part can be bent and it can be moved to the oral cavity while maintaining the bent state formed outside the oral cavity.

In addition, it can exhibit excellent performance in curved root canals without breaking the file.



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