

Summary

Cyclic fatigue test of S1 Plus Standard 25/06

The S1 Plus instrument was developed by Sendoline and introduced to the market in November 2017. The objective of the test was to determine the cyclic fatigue properties measured in seconds. The test was requested by Sendoline and performed by a third party.

For the testing S1 Plus Standard size 25/06 and competitor reciprocating instruments were selected to compare the instruments resistance against cyclic fatigue. For all tested instrument brands the best-selling size of the file system was selected.

Material

Manufacturer Brand	Item no/ Product name	Sample size	Selection criterion/ Best-selling size
Sendoline S1 Plus	S1P252506BS	6 instruments	S1 Plus Standard 25/06
Dentsply Sirona WaveOne Gold	A0756.225.G0P03	6 instruments	WaveOne Gold Primary 25/07
VDW Dental Reciproc Blue	V040252025025	6 instruments	R25 Reciproc Blue 25/08

All material / instruments were tested using the endodontic motor setting and/or contra-angle handpiece recommended by the manufacturer. For the S1 system the S1 contra-angle handpiece was used, for WaveOne Gold and Reciproc Blue the VDW Reciproc Gold motor with adequate program setting was used.

Measurements were carried out using equipment specifically intended for the testing. The time to fracture was measured with a stopwatch and documented with the following results.

Results

Instrument	S1 Plus 25/06	WaveOne Gold Primary 25/07	Reciproc Blue R25 25/08
1	198	163	127
2	271	160	132
3	220	195	117
4	223	207	90
5	175	180	95
6	161	179	100
Mean value	208	181	110



Conclusion

In this test the S1 Plus 25/06 instrument showed an average time for cyclic fatigue to occur after 208 seconds, which is above the total mean value for all tested root canal files.