Small DNA fragments and smears have traditionally proven challenging to quantify and size. The Small Fragment Analysis Kits for the Fragment Analyzer™ will quickly and accurately size and quantify fragmented or intact DNA under 1,500 bp. The high quality sizing and resolution of fragments and smears, such as small RNA NGS libraries, is due to the kit’s reformulated gel and smaller fragments in the ladder.

The figures below highlight the differing detection sensitivities of the two Small Fragment Kits. Separations were performed with sheared gDNA.

Separation performed with the:

**Standard Sensitivity Small Fragment Analysis Kit**
DNF-476-0500 or DNF-476-1000

**Sizing Range:** 50 bp - 1,500 bp

**Input Concentration Range:**
Fragment: 0.5 ng/µL - 10 ng/µL
Smear: 5 ng/µL - 100 ng/µL

Separation performed with the:

**High Sensitivity Small Fragment Analysis Kit**
DNF-477-0500 or DNF-477-1000

**Sizing Range:** 50 bp - 1,500 bp

**Input Concentration Range:**
Fragment: 5 pg/µL - 500 pg/µL
Smear: 100 pg/µL - 5,000 pg/µL
**Features and Benefits**

**Fast Run Time**
Complete analysis in approximately 35 minutes.

**Better Sizing**
Ladder has more small fragments for increased sizing accuracy.

**Reproducible Sizing**
A smaller ladder and improved gel formula improves sizing across all capillaries and fragment sizes.

**One Cap, One Sample**
One capillary dedicated to each sample eliminates cross-contamination.

**Simplified Sample Handling**
Only requires a single dilution step into a 96-well plate or strip tubes.

**Flexible Platform Design**
Gel kits for total RNA, genomic DNA and dsDNA fragments, amplicon/PCR fragments, and NGS library analysis are available.

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**High Sensitivity Small Fragment Ladder**

**Small RNA NGS Library after size selection**

Separations were performed on a Short Capillary Array (33-55) using the High Sensitivity Small Fragment Analysis Kit.

**DNF-477 HS Small Fragment Kit: Sheared gDNA**

The concentration of gDNA sheared to 150 bp – 1,400 bp was measured via DNF-477 HS Small Fragment Kit and compared to a standard fluorescent quantification method.

<table>
<thead>
<tr>
<th>Concentration (ng/µL)</th>
<th>Expected</th>
<th>5.00</th>
<th>1.00</th>
<th>0.50</th>
<th>0.25</th>
<th>0.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluorescent Instrument</td>
<td></td>
<td>5.00</td>
<td>1.00</td>
<td>0.51</td>
<td>0.27</td>
<td>0.10</td>
</tr>
<tr>
<td>Fragment Analyzer (FA)</td>
<td></td>
<td>4.81</td>
<td>0.99</td>
<td>0.55</td>
<td>0.27</td>
<td>0.15</td>
</tr>
<tr>
<td>FA Std Dev</td>
<td></td>
<td>0.16</td>
<td>0.04</td>
<td>0.03</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>FA Precision</td>
<td></td>
<td>3.30%</td>
<td>-4.21%</td>
<td>4.64%</td>
<td>3.97%</td>
<td>6.08%</td>
</tr>
<tr>
<td>FA Accuracy</td>
<td></td>
<td>-3.11%</td>
<td>-4.86%</td>
<td>6.83%</td>
<td>-0.55%</td>
<td>21.16%</td>
</tr>
</tbody>
</table>

Fluorescent instrument averages were taken from three replicates, while Fragment Analyzer averages were taken from eight replicates using a 96 Short Capillary Array (33-55). The Small Fragment Kits provide unmatched precision with repeated measurements commonly falling within 5% of each other.