Product Description

3M™ ESPE™ Sof-Lex™ Spiral Finishing and Polishing Wheels are a 2-step, single-use finishing and polishing system. The Sof-Lex Spiral Wheels use the same mandrel as 3M™ ESPE™ Sof-Lex™ Finishing and Polishing Discs.

The Sof-Lex Spiral Wheels are made of an elastomer impregnated with aluminum oxide particles. The unique, flexible shape of the Sof-Lex Spiral Wheels allows them to be used on all tooth surfaces, thereby reducing the need for differently shaped tools – like points, cups, discs and brushes – to fit various contours of the tooth anatomy.

One shape …

- Adapts to all tooth surfaces
- Works from any angle
- Is effective for anterior and posterior restorations
- Quickly achieves a life-like luster

Indications

Sof-Lex™ Spiral Wheels can be used to polish surfaces of:

Direct:
- Composite restorations
- Resin-modified glass ionomers
- Bisacrylic temporary materials

Indirect:
- Composite
- Lava™ Ultimate CAD/CAM Restorative
- Precious and semi-precious metal

Finishing and Polishing Procedure

Proper finishing of restorations is desirable not only for aesthetic considerations but also for oral health. The primary goal of finishing is to obtain a restoration which has good contour, occlusion, healthy embrasure forms and smoothness. Finishing and polishing procedures remove the air-inhibited layer, contour and shape the restoration, create surface characterisation, and produce surfaces with high gloss. Tight margins should blend aesthetically into the tooth’s natural contours. Healthy embrasure forms and smooth surfaces are less likely to trap food debris and collect plaque. The polish should be smooth enough to be tolerated well by gingival tissue.

Gross Reduction → Final Contour → Finish: Smooth surface (scratch removal) → Polish

Global market research was conducted with 300 participants. In this survey, dentists were asked what tools they used for each of the four steps of a finishing and polishing procedure.
Following are the results of the global market research along with a brief definition of each step:

### Gross Reduction

The purpose is to remove excess restorative material (including overhangs), to remove air-inhibited layer, and shape anatomy. The tools that are typically used for this process deliver the most aggressive abrasive (e.g., coarse grit) action in this procedure to remove the excess material quickly. The graph on the right depicts the most popular tools for Gross Reduction. Strips are also used for proximal areas.

### Finish Smooth surface (scratch removal)

This step reduces the scratch depth and/or removes lighter scratches produced during the Gross Reduction and Final Contour steps by the more aggressive tools. This step should leave the surface smoother and sometimes is considered a pre-polish step. The tools used for this step, as depicted in the graph on the right, are less aggressive than the previous step (e.g., a fine grit). Strips are also used for proximal areas. The fine Sof-Lex™ Spiral Finishing Wheel is designed to remove scratches and smooth the surface.

### Final Contour

The purpose of this step is to refine contours (size, shape, grooves, etc.) and margins (generating a smooth transition from tooth to restoration), re-establish contact with adjacent teeth to a normal and functional form, and reduce surface roughness. At the end of this step, the restoration should have its desired form and a smooth, clean surface. The most popular tools used for Final Contour are depicted in the graph on the right. Strips are also used for proximal areas. These tools are not as aggressive as those used for Gross Reduction (e.g., medium grit) because only small amounts of material are being removed from the restoration.

### High Gloss Polish

The objective of this step is to further smooth the surface to produce a high gloss shine on the restoration. The tools used for this step, as depicted in the graph on the right, are the least aggressive (e.g., super or ultra fine grits). Strips are also used for proximal areas. The superfine Sof-Lex™ Spiral Polishing Wheel produces a high gloss polish.
Performance

Performance for finishing and polishing systems is typically evaluated by measuring surface gloss, surface roughness and heat generation.

**Gloss Attainment**
Surface gloss or reflectance indicates how polished or shiny the surface can become after treatment. A high gloss attainment indicates a shiny, more reflective surface.

The study shows Sof-Lex™ Spiral Finishing and Polishing Wheels produce a smooth gloss surface better than or equal to the industry’s leading products.

**Surface Roughness**
Surface roughness actually measures how rough or smooth the surface is before and after treatment. Sof-Lex Spiral Finishing and Polishing Wheels produce a smoother or similar surface roughness compared to the industry-leading products.

- The surface roughness can be quantified using surface profilometers. A profilometer drags a stylus over the surface. In this case, Ra (average surface roughness expressed in units of height) is the parameter reported. The lower the Ra (average surface roughness), the smoother the surface.
- SEMs can be used to observe the actual surface roughness.

**Heat Generation**
Many finishing and polishing devices generate heat during use. Manufacturers may recommend water cooling or intermittent pressure to ensure excessive heat does not build up.

Sof-Lex Spiral Finishing and Polishing Wheels generate less heat on the surface compared to a leading rubberised system.

- The surface temperature was measured before and during treatment.
Sof-Lex™ Spiral Finishing and Polishing Wheels

The beige Sof-Lex™ Spiral Finishing Wheel is indicated to smooth and remove scratches in restorations developed during contouring. The white Sof-Lex™ Spiral Polishing Wheel is indicated for the final high gloss polishing. Both wheels should be used on slow-speed handpieces at the recommended speeds of 10,000 – 20,000 rpm. Water spray is not needed during use. Several factors can affect the final finish of a restoration: the resin matrix and fillers within the restorative material, finishing instruments and preparation design.

Technology

The unique “bristle” shape is adapted for 3M ESPE from patented radial bristle disc design developed by 3M Abrasives Division. This technology affords:

- A continuous supply of mineral to work surfaces
- A variety of grits, diameters and thickness
- A flexible instrument that conforms to surfaces
- The instrument doesn’t generate a lot of heat during use

3M ESPE optimised this design for dental applications which provides a product in 2 grits that:

- Easily adapts to all tooth surfaces, eliminating the use of multiple tools (shapes) for a single purpose to fit various contours
- Can be used on anterior and posterior restorations
- Sof-Lex Spiral Finishing Wheel (beige) removes scratches from the restoration surface (similar to the Sof-Lex™ Discs, Fine)
- Sof-Lex Spiral Polishing Wheel (white) polishes the restoration to a high gloss, natural-looking surface (similar to the Sof-Lex™ Discs, Superfine)
- No paste or water cooling necessary
- Utilizes the easy to use “pop-on” mandrel
- Single use
The Sof-Lex System Procedure

Sof-Lex™ Spiral Finishing and Polishing Wheels are designed to fit perfectly into the Sof-Lex™ System. They use the same mandrel as the discs – and because the discs and wheels feature easy, pop-on mounting, you can move efficiently through your contouring, finishing and polishing procedure. Sof-Lex discs, strips and spiral wheels are colour-coded from dark (coarse) to light (superfine) for an easily followed step-by-step process.

<table>
<thead>
<tr>
<th>Sof-Lex™ Discs</th>
<th>Sof-Lex™ XT Discs</th>
<th>Sof-Lex™ Strips</th>
<th>Anterior</th>
<th>Posterior</th>
<th>Interproximal</th>
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<tbody>
<tr>
<td>Excess removal</td>
<td>Rotating coarse or medium contouring instruments (e.g., diamonds, carbide burs, stones)</td>
<td>Sof-Lex™ Discs, Coarse</td>
<td>Rotating coarse or medium contouring instruments (e.g., diamonds, carbide burs, stones)</td>
<td>Sof-Lex™ XT Discs, Coarse</td>
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<tr>
<td>Shape anatomy</td>
<td>Rotating medium or fine contouring instruments (e.g., yellow or red ring diamonds)</td>
<td>Sof-Lex™ Discs, Medium</td>
<td>Rotating medium or fine contouring instruments (e.g., yellow or red ring diamonds)</td>
<td>Sof-Lex™ XT Discs, Medium</td>
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<tr>
<td>Remove air-inhibited layer</td>
<td>Sof-Lex™ Spiral Finishing Wheel</td>
<td>Sof-Lex™ Spiral Polishing Wheel</td>
<td>Sof-Lex™ Spiral Polishing Wheel</td>
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<tr>
<td>Reduce surface roughness</td>
<td>Complete and refine contours and margins</td>
<td>Sof-Lex™ Discs, Fine</td>
<td>Sof-Lex™ Spiral Finishing Wheel</td>
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<tr>
<td>Remove scratches</td>
<td>Smooth surface</td>
<td>Sof-Lex™ Spiral Polishing Wheel</td>
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<td>Pre-polish</td>
<td>Final polish to high gloss</td>
<td>Sof-Lex™ Spiral Polishing Wheel</td>
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