What is claimed is:

1. A film roll core, comprising:

a cylindrical tube having an outer surface;

a compliant layer disposed on the outer surface; and

a longitudinal gap in the compliant layer, the longitudinal gap having a gap width sufficient to position a film edge within the longitudinal gap.

2. The film roll core of claim 1, wherein the compliant layer is adhered to the outer surface.

3. The film roll core of claim 1, further comprising an adhesive disposed on at least a portion of an exterior surface of the compliant layer.

4. The film roll core of claim 1, wherein the longitudinal gap is parallel to a rotation axis of the cylindrical tube.

5. The film roll core of claim 1, wherein the longitudinal gap comprises a spiral.

6. The film roll core of claim 1, wherein the compliant layer comprises an open-cell foam or a closed-cell foam.

7. The film roll core of claim 1, wherein the compliant layer comprises a polyurethane, a polyethylene, a silicone, or a rubber.

8. The film roll core of claim 1, wherein the longitudinal gap includes a cross-section that comprises a rectangular shape, a tapered shape, a vee-shape, an inverted vee-shape, or a combination thereof.

9. The film roll core of claim 1, wherein the longitudinal gap includes a gap width that ranges from about 1/16 inch (1.5875 mm) to about ½ inch (12.7 mm).

10. The film roll core of claim 1, wherein the compliant layer has an uncompressed thickness that ranges from about 0.01 inches (0.254 mm) to about 0.06 inch (1.524 mm).

11. The film roll core of claim 1, wherein the longitudinal gap includes a gap width about ¼ inch (6.35 mm) and the compliant layer has an uncompressed thickness of about 0.04 inches (1.016 mm).

12. A film winding apparatus, comprising:

a film roll core having:

an outer surface;

a compliant layer disposed on the outer surface;

a longitudinal gap in the compliant layer having a gap width sufficient to accommodate a film edge; and

a cut and transfer system capable of cutting a film substrate and transferring a severed edge of the film substrate into the longitudinal gap, wherein the film substrate is disposed tangentially adjacent the outer surface, and the film substrate width is substantially parallel to a central axis of the film roll core.

13. The film winding apparatus of claim 12, wherein the cut and transfer system comprises a knife edge slitter disposed to sever the film substrate and a transfer device capable of transferring the severed edge of the film substrate into the longitudinal gap.

14. The film winding apparatus of claim 12, wherein the film substrate is capable of moving relative to the film roll core, and the film roll core is capable of rotation about the central axis.

15. The film winding apparatus of claim 12, further comprising a timing device capable of precisely timing the cutting and transfer of the severed edge into the longitudinal gap while both the film substrate and the film roll core are moving.

16. The film winding apparatus of claim 12, wherein the film substrate width of the severed edge can be positioned entirely within the longitudinal gap.

17. The film winding apparatus of claim 12, wherein the transfer device comprises a brush having a plurality of bristles, or at least one compliant flap.

18. The film winding apparatus of claim 12, wherein the compliant layer further comprises an exterior adhesive layer.

19. A method of winding film, comprising:

disposing a film substrate tangentially adjacent to a film roll core, the film roll core comprising:

an outer surface;

a compliant layer disposed on the outer surface;

a longitudinal gap in the compliant layer having a gap width sufficient to accommodate a film edge;

moving the film substrate past the film roll core;

rotating the film roll core about a central axis such that the longitudinal gap and the film substrate approach each other;

activating a knife edge slitter to sever the film substrate, thereby forming a severed film edge along a width of the film substrate; and

activating a transfer device to dispose the severed film edge into the longitudinal gap.

20. The method of claim 19, wherein the transfer device presses the film substrate to the compliant layer.

21. The method of claim 19, wherein the transfer device comprises a brush having a plurality of bristles, or at least one compliant flap.

22. The method of claim 19, wherein activating the knife edge slitter and the transfer device are timed relative to the rotation of the film roll core such that the severed film edge is positioned into the longitudinal gap and a major surface the film substrate contacts the compliant layer essentially simultaneously.

23. The method of claim 19, wherein the knife edge slitter comprises a pivoting knife edge slitter.

24. The method of claim 19, wherein the compliant layer further comprises an adhesive exterior layer.

25. A roll of film, comprising:

a film core comprising:

a cylindrical tube having an outer surface;

a compliant layer disposed on the outer surface;

a longitudinal gap in the compliant layer; and

a web of film wound around the film core,

wherein a first film edge of the web of film is disposed within the longitudinal gap such that subsequently wound layers of the web of film include minimal impressions of the first film edge.

What is claimed is:

1. A film roll core, comprising:

a cylindrical tube having an outer surface;

a compliant layer adhered to the outer surface; and

a longitudinal gap in the compliant layer, the longitudinal gap having a gap width sufficient to position a film edge within the longitudinal gap.

2. The film roll core of claim 1, further comprising an adhesive disposed on at least a portion of an exterior surface of the compliant layer.

3. The film roll core of claim 1, wherein the longitudinal gap is parallel to a rotation axis of the cylindrical tube.

4. The film roll core of claim 1, wherein the longitudinal gap comprises a spiral.

5. The film roll core of claim 1, wherein the compliant layer comprises an open-cell foam or a closed-cell foam.

6. The film roll core of claim 1, wherein the compliant layer comprises a polyurethane, a polyethylene, a silicone, or a rubber.

7. The film roll core of claim 1, wherein the longitudinal gap includes a cross-section that comprises a rectangular shape, a tapered shape, a vee-shape, an inverted vee-shape, or a combination thereof.

8. The film roll core of claim 1, wherein the longitudinal gap includes a gap width that ranges from about 1/16 inch (1.5875 mm) to about ½ inch (12.7 mm).

9. The film roll core of claim 1, wherein the compliant layer has an uncompressed thickness that ranges from about 0.01 inches (0.254 mm) to about 0.06 inch (1.524 mm).

10. The film roll core of claim 1, wherein the longitudinal gap includes a gap width about ¼ inch (6.35 mm) and the compliant layer has an uncompressed thickness of about 0.04 inches (1.016 mm).

11. A film winding apparatus, comprising:

a film roll core having:

an outer surface;

a compliant layer disposed on the outer surface;

a longitudinal gap in the compliant layer having a gap width sufficient to accommodate a film edge; and

a cut and transfer system capable of cutting a film substrate and transferring a severed edge of the film substrate into the longitudinal gap, wherein the film substrate is disposed tangentially adjacent the outer surface, and the film substrate width is substantially parallel to a central axis of the film roll core.

12. The film winding apparatus of claim 11, wherein the cut and transfer system comprises a knife edge slitter disposed to sever the film substrate and a transfer device capable of transferring the severed edge of the film substrate into the longitudinal gap.

13. The film winding apparatus of claim 11, wherein the film substrate is capable of moving relative to the film roll core, and the film roll core is capable of rotation about the central axis.

14. The film winding apparatus of claim 11, further comprising a timing device capable of precisely timing the cutting and transfer of the severed edge into the longitudinal gap while both the film substrate and the film roll core are moving.

15. The film winding apparatus of claim 11, wherein the film substrate width of the severed edge can be positioned entirely within the longitudinal gap.

16. The film winding apparatus of claim 11, wherein the transfer device comprises a brush having a plurality of bristles, or at least one compliant flap.

17. The film winding apparatus of claim 11, wherein the compliant layer further comprises an exterior adhesive layer.

18. A method of winding film, comprising:

disposing a film substrate tangentially adjacent to a film roll core, the film roll core comprising:

an outer surface;

a compliant layer disposed on the outer surface;

a longitudinal gap in the compliant layer having a gap width sufficient to accommodate a film edge;

moving the film substrate past the film roll core;

rotating the film roll core about a central axis such that the longitudinal gap and the film substrate approach each other;

activating a knife edge slitter to sever the film substrate, thereby forming a severed film edge along a width of the film substrate; and

activating a transfer device to dispose the severed film edge into the longitudinal gap.

19. The method of claim 18, wherein the transfer device presses the film substrate to the compliant layer.

20. The method of claim 18, wherein the transfer device comprises a brush having a plurality of bristles, or at least one compliant flap.

21. The method of claim 18, wherein activating the knife edge slitter and the transfer device are timed relative to the rotation of the film roll core such that the severed film edge is positioned into the longitudinal gap and a major surface the film substrate contacts the compliant layer essentially simultaneously.

22. The method of claim 18, wherein the knife edge slitter comprises a pivoting knife edge slitter.

23. The method of claim 18, wherein the compliant layer further comprises an adhesive exterior layer.

24. A roll of film, comprising:

a film core comprising:

a cylindrical tube having an outer surface;

a compliant layer disposed on the outer surface;

a longitudinal gap in the compliant layer; and

a web of film wound around the film core,

wherein a first film edge of the web of film is disposed within the longitudinal gap such that subsequently wound layers of the web of film include minimal impressions of the first film edge.