CLAIMS

What is claimed is:

1. A delivery catheter assembly comprising:

a control device;

an elongated catheter sheath having a distal end and a proximal end connected to the control device; and

a tip protector sleeve locked onto the elongated catheter sheath and slideable over a length of the elongated catheter sheath between a proximal-stop position and a distal-stop position along the elongated catheter sheath.

2. The delivery catheter assembly of claim 1, further comprising an interference stop which determines the distal-stop position and prevents the tip protector sleeve from sliding off of the distal end of the elongated catheter sheath.

3. The delivery catheter assembly of claim 2, wherein the interference stop comprises a male interference part which interferes with sliding of a female interference part over the elongated catheter sheath.

4. The delivery catheter assembly of claim 3, wherein the tip protector sleeve comprises an elongated shaft and a backstop together functioning as the female interference part, and the male interference part is fixed to the elongated catheter sheath.

5. The delivery catheter assembly of claim 4, wherein the male interference part comprises a bump fixed to the elongated catheter sheath.

6. The delivery catheter assembly of claim 5, wherein the bump comprises a band fixed to and encircling the elongated catheter sheath.

7. The delivery catheter assembly of claim 6, wherein a distal end of the band is crimped onto the elongated catheter sheath, and a proximal end of the band is not crimped onto the elongated shaft.

8. The delivery catheter assembly of claim 4, wherein the backstop has an ID which is smaller than an OD of the male interference part.

9. The delivery catheter assembly of claim 8, further comprising a molded bead fixed to a proximal end of the elongated shaft.

10. The delivery catheter of claim 9, wherein the molded bead comprises:
a distal portion surrounding the proximal end of the elongated shaft;
a shoulder portion extending proximally of the elongated shaft; and
the backstop, wherein the backstop abuts the proximal end of the elongated shaft.

11. The delivery catheter assembly of claim 8, wherein the tip protector sleeve further comprises an inner shaft fixed to a proximal end of the elongated shaft, and the backstop is a distal end of the inner shaft.

12. The delivery catheter assembly of claim 4, wherein the male interference part is fixed to the elongated catheter sheath a first distance from the distal end of the elongated catheter sheath, and wherein the tip protector sleeve is longer than the first distance such that the tip protector sleeve extends distally beyond the elongated catheter sheath when at the distal-stop position.

13. The delivery catheter assembly of claim 12, further comprising an insert disposed within and extending distally beyond a distal end of the elongated catheter sheath, wherein the tip protector sleeve extends distally beyond the insert when at the distal-stop position.

14. The delivery catheter assembly of claim 3, wherein the tip protector sleeve further comprises a sealing valve.

15. A method of forming a delivery catheter assembly comprising:

sliding a tip protector sleeve over a distal end of an elongated catheter sheath and toward a control device;

fixing a bump onto a distal region of the elongated catheter sheath, wherein the bump prevents the tip protector sleeve from sliding off of a distal end of the elongated catheter sheath.

16. The method of claim 15, wherein fixing a bump onto a distal region of the elongated catheter sheath comprises crimping.

17. The method of claim 16, wherein crimping comprises crimping a distal end of a band onto the elongated catheter sheath.

18. The method of claim 17, further comprising not crimping a proximal end of the band onto the elongated catheter shaft.

19. A method of delivering an insert comprising:

providing a delivery catheter assembly comprising:

a control device;

an elongated catheter sheath having a distal end and a proximal end connected to the control device;

an insert releasably disposed within the elongated catheter sheath; and

a tip protector sleeve locked onto the elongated catheter sheath and slideable over a length of the elongated catheter sheath between a proximal-stop position and a distal-stop position along the elongated catheter sheath;

positioning the tip protector sleeve at the distal-stop position;

inserting the tip protector sleeve through an access port of a hysteroscope system and into a working channel of the hysteroscope system;

advancing the distal end of the elongated catheter sheath to a target location within a body lumen; and

deploying the insert inside the body lumen.

20. The method of claim 19, wherein inserting the tip protector sleeve further comprises advancing a distal end of the tip protector sleeve past a valve clamp of the hysteroscope system.

21. The method of claim 20, wherein inserting the tip protector sleeve comprises advancing the tip protector sleeve into the working channel until a flanged mechanical stop on the tip protector sleeve abuts the access port or a sealing cap coupled to the access port.

22. The method of claim 21, wherein the distal end of the elongated catheter sheath is advanced to the target location within the body lumen while the flanged mechanical stop on the tip protector sleeve abuts the access port or the sealing cap.

23. The method of claim 19, further comprising removing the delivery catheter assembly from the working channel after deploying the insert inside the body lumen.

24. The method of claim 19, wherein removing the delivery catheter assembly from the working channel comprises withdrawing a bump on the elongated catheter sheath proximally against a backstop of the tip protector sleeve to cause the tip protector sleeve to be withdrawn from the working channel.

25. The method of claim 19, further comprising tightening a sealing valve of the tip protector sleeve onto the elongated catheter sheath after positioning the tip protector sleeve at the distal-stop position, and prior to inserting the tip protector sleeve through the access port of the hysteroscope system.