CLAIMS

WHAT IS CLAIMED IS:

1. A catheter coupler for use with a delivery system for the delivery of a transcatheter prosthetic heart valve or a transcatheter heart valve repair device, the delivery system including at least one of an implant catheter, steerable catheter, or outer sheath, the catheter coupler, comprising:

a housing having a catheter connection lumen, a plurality of passages, and an outer circumferential channel, wherein the plurality of passages each connect the catheter connection lumen to the outer circumferential channel;

a cap rotatably coupled to the housing, wherein the cap has an outlet port in fluid communication with the outer circumferential channel; and

one or more seals that provide seals between the housing and the cap that direct fluid flow from the outer circumferential channel to the outlet port;

wherein the cap is rotatable to position the outlet port a vertical orientation without rotating the housing;

wherein a catheter is connected to the catheter connection lumen;

wherein the catheter is one of the implant catheter, steerable catheter, or outer sheath of the delivery system for the delivery of a transcatheter prosthetic heart valve or a transcatheter heart valve repair device.

2. The catheter coupler of claim 1, wherein the outlet port is coupled to a pressure sensor.

3. The catheter coupler of any of claims 1 and 2, wherein the one or more sealing members comprise a first sealing member and a second sealing member that are positioned at least partially within grooves on the housing.

4. The catheter coupler of claim 3, wherein the first sealing member is positioned next to the outer circumferential channel on a first side, and wherein the second sealing member is positioned next to the outer circumferential channel on a second side.

5. A delivery system comprising:

a first a catheter coupler as defined in claim 1

a first catheter connected to the first catheter connection lumen of the first catheter coupler;

a second catheter coupler having a second catheter connection lumen;

a second catheter connected to the second catheter connection lumen of the second catheter coupler;

wherein the second catheter extends through the first catheter coupler and through the first catheter.

6. The delivery system of claim 5 further comprising a pusher element positioned within the second catheter.

7. The delivery system of claim 6 wherein a valve implant or repair device is detachably connected to the pusher element.

8. The delivery system of any of claims 5-7 wherein the outlet port of the first catheter coupler is coupled to a pressure sensor.

9. The delivery system of any of claims 5-8 wherein the outlet port of the second catheter coupler is coupled to a pressure sensor.

10. The delivery system of any of claims 5-9, wherein the at least one seal of the first catheter coupler comprises a first sealing member and a second sealing member disposed between the housing and the cap.

11. The delivery system of claim 10, wherein the first sealing member and the second sealing member are positioned at least partially within grooves on the housing of the first catheter coupler.

12. The delivery system of any of claims 10-11, wherein the first sealing member is positioned next to the outer circumferential channel on a first side, and wherein the second sealing member is positioned next to the outer circumferential channel on a second side.

13. The delivery system of any of claims 5-12 wherein the first catheter includes a radially inwardly extending projection that maintains a flow path between the first catheter and the second catheter.

14. The delivery system of claim 13 wherein the radially inwardly extending projection contains a catheter steering wire.