CLAIMS

We claim:

1. A sensor assembly (5) for a fluid meter (100), comprising:

a sensor assembly body (6);

one or more circumferential grooves (303) formed in the sensor assembly body (6);

two or more retaining components (105, 106) removably coupled together and engaging at least one of the one or more circumferential grooves (303); and

a flange (104) surrounding at least a portion of the sensor assembly body (6) and retained around the sensor assembly body (6) by the first and second retaining components (105, 106);

wherein the two or more retaining components (105, 106) are clamped together around the one or more circumferential groves (303).

2. The sensor assembly (5) of claim 1, wherein the flange (104) comprises a step (414) extending from an inner surface (417) with a portion of the inner surface (417) extending over the two or more retaining components (105, 106) and the step (414) abutting the two or more retaining components (105, 106).

3. The sensor assembly (5) of claim 1, wherein the sensor assembly body (6) comprises a case (101), a pipeline interface (103), and a transition ring (102) coupling the pipeline interface (103) to the case (101).

4. The sensor assembly (5) of claim 3, wherein the one or more circumferential grooves (303) are formed in the transition ring (102).

5. The sensor assembly (5) of claim 3, further comprising an O-ring groove (404) formed in a face of the pipeline interface (103).

6. The sensor assembly (5) of claim 1, wherein each of the two or more retaining components (105, 106) includes a lip (415, 416) sized and shaped to be received by the circumferential groove.

7. The sensor assembly (5) of claim 1, further comprising one or more mechanical fasteners (406, 406') engaging the two or more retaining components (105, 106) to couple the two or more retaining components (105, 106) to one another.

8. A method for retaining a flange on a sensor assembly, comprising steps of:

positioning the flange around a portion of a sensor assembly body such that the flange is located closer to a mid-portion of the sensor assembly body than a circumferential groove formed in the sensor assembly body; and

removably coupling two or more retaining components around the circumferential groove by clamping the two or more retaining components together to provide an outer diameter of a ring that is larger than at least a portion of an inner diameter of the flange, thereby preventing the flange from moving past the two or more retaining components.

9. The method of claim 8, wherein the flange comprises a step extending from an inner surface with a portion of the inner surface extending over the two or more retaining components and the step abutting the two or more retaining components.

10. The method of claim 8, wherein the sensor assembly body comprises a case, a pipeline interface, and a transition ring coupling the pipeline interface to the case.

11. The method of claim 10, wherein the circumferential groove is formed in the transition ring.

12. The method of claim 10, wherein the pipeline interface comprises an O-ring groove.

13. The method of claim 8, wherein each of the two or more retaining components includes a lip sized and shaped to be received by the circumferential groove.

14. The method of claim 8, wherein the step of removably coupling the two or more retaining components comprises engaging one or more mechanical fasteners with one more fastener apertures formed in the two or more retaining components.

CLAIMS

We claim:

1. A sensor assembly (5) for a fluid meter (100), comprising:

a sensor assembly body (6);

one or more circumferential grooves (303) formed in the sensor assembly body (6);

two or more retaining components (105, 106) removably coupled together and engaging at least one of the one or more circumferential grooves (303);

one or more threaded mechanical fasteners (406, 406') engaging the two or more retaining components (105, 106) to couple the two or more retaining components (105, 106) to one another; and

a flange (104) surrounding at least a portion of the sensor assembly body (6) and retained around the sensor assembly body (6) by the first and second retaining components (105, 106);

wherein the two or more retaining components (105, 106) are clamped together around the one or more circumferential groves (303).

2. The sensor assembly (5) of claim 1, wherein the flange (104) comprises a step (414) extending from an inner surface (417) with a portion of the inner surface (417) extending over the two or more retaining components (105, 106) and the step (414) abutting the two or more retaining components (105, 106).

3. The sensor assembly (5) of claim 1, wherein the sensor assembly body (6) comprises a case (101), a pipeline interface (103), and a transition ring (102) coupling the pipeline interface (103) to the case (101).

4. The sensor assembly (5) of claim 3, wherein the one or more circumferential grooves (303) are formed in the transition ring (102).

5. The sensor assembly (5) of claim 3, further comprising an O-ring groove (404) formed in a face of the pipeline interface (103).

6. The sensor assembly (5) of claim 1, wherein each of the two or more retaining components (105, 106) includes a lip (415, 416) sized and shaped to be received by the circumferential groove.

7. A method for retaining a flange on a sensor assembly, comprising steps of:

positioning the flange around a portion of a sensor assembly body such that the flange is located closer to a mid-portion of the sensor assembly body than a circumferential groove formed in the sensor assembly body; and

removably coupling two or more retaining components around the circumferential groove by clamping the two or more retaining components together using one or more threaded mechanical fasteners to provide an outer diameter of a ring that is larger than at least a portion of an inner diameter of the flange, thereby preventing the flange from moving past the two or more retaining components

8. The method of claim 7, wherein the flange comprises a step extending from an inner surface with a portion of the inner surface extending over the two or more retaining components and the step abutting the two or more retaining components.

9. The method of claim 7, wherein the sensor assembly body comprises a case, a pipeline interface, and a transition ring coupling the pipeline interface to the case.

10. The method of claim 9, wherein the circumferential groove is formed in the transition ring.

11. The method of claim 9, wherein the pipeline interface comprises an O-ring groove.

12. The method of claim 7, wherein each of the two or more retaining components includes a lip sized and shaped to be received by the circumferential groove.