Claims

1. A feedthrough, comprising:

a body, the body including

a base portion configured to be attached to a pressure vessel,

a barrel portion coupled to the base portion,

a through-hole formed through the base portion and the barrel portion that accommodates a terminal, and

threads formed on the inner portion of the through-hole, the threads having a rounded or a square thread; and

an insulator, the insulator including

a top portion,

a barrel portion coupled to the top portion,

a through-hole formed through the top portion and the barrel portion, and

threads formed on the outer portion of the barrel portion; and

wherein the insulator is screwed into the body to form the feedthrough.

2. The feedthrough of claim 1, wherein bottom threads of the body are tapered and a bottom thread of the insulator is angled upward.

3. The feedthrough of claim 1, wherein the insulator further includes a fill structure, wherein the fill structure includes

a fill through-hole formed through the top portion and the barrel portion of the insulator;

a first pipe with an inner diameter aligned with the fill through-hole, the first pipe including a barrier;

a second pipe with an inner diameter, the second pipe angled from the first pipe such that the inner diameter of the second pipe intersects the fill through-hole below the barrier, and

further including a plug designed to push through the barrier in the first pipe and into the fill through-hole.

4. The feedthrough of claim 1, wherein the insulator includes one or more through-holes to accommodate conductors.

5. A method of operating a feedthrough attached to a pressure vessel, comprising:

screwing an insulator into a body, the body being attached to the pressure vessel, wherein the insulator and the body both include threads that are rounded or square to form a seal between the threads of the body and the threads of the insulator;

inserting a component through a through-hole in the insulator; and

compressing the body to form seals between the component and the through-hole in the insulator and the threads of the insulator and the body.

6. The method of claim 5, wherein the threads of the body and the threads of the insulator are each DIN 405 rounded threads.

7. The method of claim 5, wherein the threads of the body are tapered.

8. The method of claim 5, wherein a bottom thread of the insulator is angled upward.

9. A method of operating a feedthrough attached to a pressure vessel, comprising:

screwing an insulator into a body, the body being attached to the pressure vessel, wherein the insulator and the body both include threads;

inserting a component through a through-hole in the insulator such that an interference seal is formed between the component and the insulator;

using a fill structure formed in the insulator, the fill structure including a first pipe extending from the insulator and communicating with a fill through-hole in the insulator and a second pipe angularly extending from the insulator and communicating with the fill through-hole in the insulator, wherein the first pipe includes a barrier;

inserting a plug through the barrier in the first pipe and into the fill through-hole;

compressing the body to form seals between the component and the through-hole in the insulator, the plug and the fill through-hole in the insulator, and the threads of the insulator and the body; and

removing the first pipe and the second pipe.

10. The method of claim 9, where using the fill structure includes

pulling a vacuum on the pressure vessel;

adding electrolyte to the pressure vessel;

draining access electrolyte from the pressure vessel; and

adding a gas to the pressure vessel.

11. The method of claim 9, wherein using the fill structure includes pressurizing the pressure vessel.

12. The method of claim 9, wherein the threads of the body and the threads of the insulator are rounded or square to form a seal between the threads of the body and the threads of the insulator.

13. The method of claim 12, wherein the threads of the body are tapered.

14. The method of claim 12, wherein the threads of the insulator is angled upward.

15. A feedthrough, comprising:

a body, the body including

a base portion configured to be attached to a pressure vessel,

a barrel portion coupled to the base portion,

a through-hole formed through the base portion and the barrel portion, and

threads formed on the inner portion of the through-hole; and

an insulator, the insulator including

a top portion,

a barrel portion coupled to the top portion,

a through-hole formed through the top portion and the barrel portion,

threads formed on the outer portion of the barrel portion, a bottom thread of the threads being tapered, and

one or more additional through-holes formed in the top portion and the barrel portion of the insulator; and

wherein the insulator is screwed into the body to form the feedthrough.

16. The feedthrough of claim 15, wherein the threads of the body are tapered.

17. The feedthrough of claim 15, wherein the bottom thread of the insulator is tapered by being angled upward.

18. The feedthrough of claim 15, wherein the through-hole of the insulator accommodates a terminal.

19. The feedthrough of claim 15, wherein the one or more additional feedthroughs includes a fill structure, wherein the fill structure includes

a fill through-hole formed through the insulator;

a first pipe with an inner diameter aligned with the fill through-hole, the first pipe including a barrier; and

a second pipe with an inner diameter, the second pipe angled from the first pipe such that the inner diameter of the second pipe intersects the fill through-hole below the barrier, and

further including a plug designed to push through the barrier in the first pipe and into the fill through-hole.

20. The feedthrough of claim 15, wherein the one or more through-holes accommodate one or more conductors.