CLAIMS

What is claimed is:

1. A hermetic feed-through comprising:

a housing body defining a hollow space;

a plurality of conductive pins extending through the hollow space; and

a seal structure provided in the hollow space,

wherein the seal structure comprises a single-piece glass component for hermetically sealing at least two conductive pins to the housing body, and electrically insulating the at least two conductive pins from the housing body and from each other.

2. The hermetic feed-through of Claim 1, wherein the seal structure has only one single-piece glass component and the only one single-piece glass component has a shape corresponding to that of the hollow space.

3. The hermetic feed-through of Claim 2, wherein the single-piece glass component defines a plurality of apertures corresponding to the plurality of conductive pins.

4. The hermetic feed-through of Claim 2, wherein the single-piece glass component has an aspect ratio of at least greater than 1:1 to about 4:1.

5. The hermetic feed-through of Claim 4, wherein the single-piece glass component has an elongated shape having an aspect ratio of about 1.8:1 to about 3:8:1.

6. The hermetic feed-through of Claim 2, wherein the single-piece glass component has an elongated shape having an aspect ratio of about 1.8:1.

7. The hermetic feed-through of Claim 1, wherein the plurality of conductive pins are divided into a first group comprising more than one

conductive pin and a second group comprising more than one conductive pin, and wherein the seal structure includes a first single-piece glass component and a second single-piece glass component, the first single-piece glass component sealing the first group of conductive pins to the housing body and the second single-piece glass component sealing the second group of conductive pins to the housing body.

8. The hermetic feed-through of Claim 7, wherein the first single-piece glass component and the second single-piece glass component are aligned along a longitudinal direction of the housing body.

9. The hermetic feed-through of Claim 7, further comprising a bridge member between the first single-piece glass component and the second single-piece glass component.

10. The hermetic feed-through of Claim 9, wherein the first single-piece glass component seals the first group of conductive pins to the housing body and the bridge member, and the second single-piece glass component seals the second group of conductive pins to the housing body and the bridge member.

11. The hermetic feed-through of Claim 10, wherein the bridge member extends across the hollow space in a transverse direction perpendicular to a longitudinal direction of the housing body.

12. The hermetic feed-through of Claim 11, wherein the first single-piece glass component and the second single-piece glass component each seal one-half of the plurality of conductive pins.

13. The hermetic feed-through of Claim 12, wherein the conductive pins are aligned along the longitudinal direction in two rows.

14. The hermetic feed-through of Claim 1, wherein the housing body has a pair of longitudinal walls extending along a longitudinal direction of the housing body and a pair of end walls connecting the longitudinal walls, and wherein the longitudinal walls have a thickness different from that of the end walls.

15. The hermetic feed-through of Claim 14, wherein the end walls are thinner than the longitudinal walls.

16. The hermetic feed-through of Claim 1, wherein the single-piece glass component has a surface formed with a recessed portion.

17. The hermetic feed-through of Claim 1, further comprising a plurality of coatings on a surface of the single-piece glass component and around at least one of the plurality of conductive pins.

18. A hermetic feed-through, comprising:

a housing body defining an elongated hollow space and including a pair of longitudinal walls extending along a longitudinal direction of the housing body, and a pair of end walls extending along a transverse direction perpendicular to the longitudinal direction;

a first group of a plurality of conductive pins passing through the elongated hollow space;

a second group of a plurality of conductive pins passing through the elongated hollow space;

a bridge member extending across the hollow space in the transverse direction and separating the first group of conductive pins from the second group of conductive pins;

a first single-piece glass component defining a plurality of apertures corresponding to the first group of conductive pins and sealing the first group of conductive pins to the bridge member and the housing body; and

a second single-piece glass component defining a plurality of apertures corresponding to the second group of conductive pins and sealing the second group of conductive pins to the bridge member and the housing body,

wherein the first single-piece glass component and the second single-piece glass component are aligned along the longitudinal direction of the housing body, and wherein the end walls are thinner than the longitudinal walls.

19. A hermetic feed-through comprising:

a hollow housing body;

a plurality of groups of conductive pins extending through the hollow housing body, each group including at least two conductive pins;

a plurality of single-piece glass components corresponding to the plurality groups of conductive pins for sealing a corresponding one of the plurality groups of conductive pins to the housing body, the plurality of single-piece glass components aligned along a longitudinal direction of the hollow housing body; and

a plurality of bridge members each separating adjacent two of the plurality of single-piece glass components.

20. The hermetic feed-through of Claim 19, wherein the plurality of seal components have different sizes.

CLAIMS

WHAT IS CLAIMED IS:

1. A hermetic feed-through comprising:
a housing body;

a plurality of groups of conductive pins extending through the housing body, each group including at least two conductive pins;

a plurality of single-piece glass components corresponding to the plurality of groups of conductive pins for hermetically sealing the pins in a corresponding one of the plurality groups of conductive pins to the housing body and electrically isolating each of the pins in a corresponding one of the plurality of groups of conductive pins from the housing body and each other, the plurality of single-piece glass components aligned along a longitudinal direction of the housing body; and

the housing body comprising a plurality of bridge members each separating adjacent two of the plurality of single-piece glass components.

2. The hermetic feed-through of claim 1, wherein the plurality of glass components have different sizes.

3. A hard disk drive comprising the hermetic feed-through of claim 1.

4. A hermetic feed-through comprising:
a housing body having an opening extending therethrough;

a plurality of conductive pins extending through the opening; and

a seal structure disposed in the opening, the seal structure comprising a single-piece glass component for hermetically sealing at least two conductive pins to the housing body and electrically insulating the at least two conductive pins from the housing body and from each other, the glass component comprising a surface including a recessed portion.

5. The hermetic feed-through of claim 4, wherein the single-piece glass component defines a plurality of apertures corresponding to the plurality of conductive pins.

6. The hermetic feed-through of Claim 4, wherein the single-piece glass component has an aspect ratio of at least greater than 1:1 to about 4:1.

7. The hermetic feed-through of claim 6, wherein the single-piece glass component has an elongated shape having an aspect ratio of about 1.8:1 to about 3.8:1.

8. The hermetic feed-through of Claim 4, wherein the single-piece glass component has an elongated shape having an aspect ratio of about 1.8:1.

9. The hermetic feed-through of Claim 4, wherein the plurality of conductive pins are divided into a first group comprising more than one conductive pin and a second group comprising more than one conductive pin, and wherein the seal structure includes a first single-piece glass component and a second single-piece glass component, the first single-piece glass component sealing the first group of conductive pins to the housing body and the second single-piece glass component sealing the second group of conductive pins to the housing body.

10. The hermetic feed-through of claim 9, wherein the first single-piece glass component and the second single-piece glass component are aligned along a longitudinal direction of the housing body.

11. The hermetic feed-through of claim 9, further comprising a bridge member between the first single-piece glass component and the second single-piece glass component.

12. The hermetic feed-through of claim 11, wherein the first single-piece glass component seals the first group of conductive pins to the housing body and the bridge member, and the second single-piece glass component seals the second group of conductive pins to the housing body and the bridge member.

13. The hermetic feed-through of claim 12, wherein the bridge member extends across the opening in a transverse direction perpendicular to a longitudinal direction of the housing body.

14. The hermetic feed-through of claim 13, wherein the first single-piece glass component and the second single-piece glass component each seal one-half of the plurality of conductive pins.

15. The hermetic feed-through of claim 14, wherein the conductive pins are aligned along the longitudinal direction in two rows.

16. The hermetic feed-through of claim 4, wherein the housing body has a pair of longitudinal walls extending along a longitudinal direction of the housing body and a pair of end walls connecting the longitudinal walls, and wherein the longitudinal walls have a thickness different from that of the end walls.

17. The hermetic feed-through of claim 16, wherein the end walls are thinner than the longitudinal walls.

18. The hermetic feed-through of Claim 4, further comprising a plurality of coatings on a surface of the single-piece glass component and around at least one of the plurality of conductive pins.

19. A hard disk drive comprising the hermetic feed-through of claim 4.

20. A hermetic feed-through, comprising:

a housing body defining an elongated opening and including a pair of longitudinal walls extending along a longitudinal direction of the housing body, and a pair of end walls extending along a transverse direction perpendicular to the longitudinal direction;

a first group of a plurality of conductive pins passing through the elongated opening;

a second group of a plurality of conductive pins passing through the elongated opening;

the housing body comprising a bridge member extending across the opening in the transverse direction and separating the first group of conductive pins from the second group of conductive pins;

a first single-piece glass component defining a plurality of apertures corresponding to the first group of conductive pins and hermetically sealing the first group of conductive pins

to the elongated opening in the housing body and electrically isolating each of the pins in the first group of conductive pins from the housing body and each other; and

a second single-piece glass component defining a plurality of apertures corresponding to the second group of conductive pins and hermetically sealing the second group of conductive pins to the elongated opening in the housing body and electrically isolating each of the pins in the second group of conductive pins from the housing body and each other,

wherein the first single-piece glass component and the second single-piece glass component are aligned along the longitudinal direction of the housing body.

21. A hard disk drive comprising the hermetic feed-through of claim 20.

22. A hermetic feed-through comprising:
a body defining an opening;

a plurality of conductive pins extending through the opening; and

a seal structure provided in the opening for hermetically sealing each of the plurality of conductive pins to the housing body and electrically isolating each of the plurality of conductive pins from the body and from each other;

wherein the plurality of conductive pins are divided into a first group comprising more than one conductive pin and a second group comprising more than one conductive pin; and

wherein the seal structure comprises a first single-piece glass component and a second single-piece glass component, the first single-piece glass component hermetically sealing each of the conductive pins of the first group of conductive pins to the body and electrically isolating each of the conductive pins of the first group of conductive pins from the body and each other and the second single-piece glass component hermetically sealing each of the conductive pins of the second group of conductive pins to the body and electrically isolating each of the conductive pins of the second group of conductive pins from the body and each other.

23. A hard disk drive comprising the hermetic feed-through of claim 22.

24. A hermetic feed-through comprising:
a body comprising an opening and a bridge member separating the opening into a first receiving space and a second receiving space;

a first plurality of conductive pins extending through the first receiving space of the body;

a second plurality of conductive pins extending through the second receiving space of the body; and

a seal structure hermetically sealing the conductive pins to the body, the seal structure comprising a first single-piece glass component both hermetically sealing each of the first plurality of conductive pins to the body and electrically isolating each of the first plurality of conductive pins from the body and each other and a second single-piece glass component both hermetically sealing the second plurality of conductive pins to the body and electrically isolating each of the second plurality of conductive pins from the body and each other.

25. The hermetic feed-through of claim 24, wherein at least one of the first and second single-piece glass components has an aspect ratio of at least greater than 1:1 to about 4:1.

26. The hermetic feed-through of claim 24, wherein at least one of the first and second single-piece glass components has an aspect ratio of about 1.8:1 to about 3.8:1.

27. The hermetic feed-through of claim 24, wherein the bridge member extends generally transverse to a longitudinal direction of the body.

28. The hermetic feed-through of claim 24, wherein the number of conductive pins in the first plurality of conductive pins and the number of conductive pins the second plurality of conductive pins are about the same.

29. A hard disk drive comprising the hermetic feed-through of claim 24