CLAIMS

1. An ophthalmic drug delivery device comprising:

a body defining a refillable reservoir;

an extrascleral flange projecting from a proximal end of the body and defining a bore extending from an upper surface of the flange into the reservoir defined by the body;

a septum comprising an upper surface connected to a lower surface by a curved outer surface, wherein the curved outer surface of the septum forms a first bond with the bore, wherein a perimeter region of the upper surface of the septum lies flush with a plane of the upper surface of the flange and a central region of the upper surface lies below the perimeter region; and

an elastomeric encasement extending over at least the upper surface of the flange and the upper surface of the septum, wherein the encasement prevents displacement of the septum relative to the bore upon penetration by a needle.

2. The device of claim 1, wherein a maximum height of the septum between the lower surface and the upper surface is greater than 1.05 mm and less than 1.35 mm.

3. The device of claim 1 or claim 2, wherein the central region of the upper surface of the septum forms a depression in the upper surface of the septum, wherein the encasement fills the depression.

4. The device of any one of claims 1-3, wherein the encasement and the upper surface of the septum interface along a full diameter of the septum.

5. The device of claim 4, wherein a contact area at the interface is non-planar.

6. The device of any one of claims 1-5, wherein the septum is formed of silicone elastomer.

7. The device of any one of claims 1-6, wherein the body is formed of polysulfone.

8. The device of any one of claims 1-7, wherein the encasement is formed of silicone elastomer.

9. The device of any one of claims 1-8, wherein the encasement bonds only to the upper surface of the septum forming a second bond.

10. The device of claim 9, wherein the first bond between the curved outer surface of the septum and the bore is formed using an epoxy adhesive.

11. The device of claim 10, wherein the epoxy adhesive comprises an amine-based epoxy curing agent.

12. The device of any one of claims 9-11, wherein the first bond is substantially free of trimethyl-1, 6-Hexandiamine prior to forming the second bond between the encasement and the upper surface of the septum.

13. The device of any one of claims 1-12, wherein the body is transparent or translucent.

14. The device of any one of claims 1-13, wherein the encasement is transparent or translucent.

15. The device of any one of claims 1-14, wherein the encasement and the septum are configured to be penetrated by the needle during refilling of the reservoir and configured to reseal after penetration and upon removal of the needle from the reservoir.

16. The device of any one of claims 1-15, wherein the needle is siliconized along at least a portion of its length.

17. The device of any one of claims 1-16, wherein the septum is oversized relative to the bore such that the bore applies radial compression on the septum.

18. The device of any one of claims 1-17, wherein the body defining the refillable reservoir is configured for implantation within a vitreous of an eye through a penetration in the sclera of the eye.

19. The device of any one of claims 1-18, wherein the body further comprises a porous structure positioned within a distal end region of the refillable reservoir.

20. The device of any one of claims 1-19, wherein the encasement encapsulates the upper surface and a lower surface of the flange without bonding to the flange.

21. The device of any one of claims 1-20, wherein the flange further comprises one or more through-holes.