CLAIMS

What is claimed is:

1. A bioprocessing flow connection system comprising:

a flow reducer comprising:

a first end with a first aperture and a first diameter;

a second end with a second aperture and a second diameter that is different than the first diameter;

a reducer lumen extending through the first and the second end;

a reducer rim about the first end and about the first aperture; and

a gasket channel in the reducer rim and extending about the first aperture;

an overmold channel within the gasket channel, the overmold channel extending about the first aperture and toward the second end; and

one or more cavities within the overmold channel extending radially away from the reducer lumen;

a ferrule substantially aligned with the flow reducer comprising:

a ferrule lumen through a ferrule aperture;

a ferrule rim about the ferrule aperture; and

an alignment channel about the ferrule rim; and

a gasket disposed within the gasket channel, the gasket being overmolded within the gasket channel and extending within the one or more cavities, the gasket comprising:

an alignment rib disposed on an outer surface of the gasket and extending about the first aperture, the alignment rib configured to substantially align with the alignment channel of the ferrule.

2. The bioprocessing flow connection system of claim 1, further comprising:

a plurality of concentric friction channels within the reducer rim extending about the reducer lumen; and

wherein the gasket extends within the friction channels.

3. A bioprocessing flow connection system comprising:

a flow reducer comprising:

a first end with a first aperture and a first diameter;

a second end with a second aperture and a second diameter that is different than the first diameter;

a reducer lumen extending through the first and the second end;

a reducer rim about the first end and about the first aperture; and

a gasket channel in the reducer rim and extending about the first aperture;

a ferrule substantially aligned with the flow reducer comprising:

a ferrule lumen through a ferrule aperture;

a ferrule rim about the ferrule aperture; and

an alignment channel about the ferrule rim; and

a gasket disposed within the gasket channel comprising:

an alignment rib disposed on an outer surface of the gasket and extending about the first aperture, the alignment rib configured to substantially align with the alignment channel of the ferrule;

a primary rib disposed on the outer surface of the gasket concentrically within the alignment rib; and

an inner surface of the gasket that tapers inwardly toward both of the reducer rim and the reducer lumen.

4. The bioprocessing flow connection system of claim 3, wherein the inner surface increases surface contact with the reducer rim as pressure increases within the reducer lumen.

5. The bioprocessing flow connection system of any of claims 3 and 4, wherein the reducer rim includes a reducer rib about the first aperture in substantial contact with an outer surface of the inner surface of the gasket.

6. The bioprocessing flow connection system of any of claims 3-5, further comprising a secondary rib disposed on the outer surface of the gasket concentrically between the alignment rib and the primary rib.

7. The bioprocessing flow connection system of any of the foregoing claims, further comprising a stop disposed on the outer surface of the gasket and extending about an outer edge of the gasket, the stop having a surface tapering radially toward the reducer lumen.

8. The bioprocessing flow connection system of any of the foregoing claims, further comprising:

a process vessel having substantially aligned with the second end of the flow reducer; and

wherein the ferrule is part of a filtration vessel.

9. A gasket comprising:

an outer surface;

an inner surface opposing the outer surface;

an aperture through the outer and inner surfaces;

an alignment rib disposed on the outer surface and extending about the aperture, the alignment rib configured to substantially align with an alignment channel of a ferrule rim;

a primary rib disposed on the outer surface of the gasket concentrically within the alignment rib; and

an inner edge of the gasket that tapers inwardly toward the aperture;

wherein the gasket is arranged and configured to be overmold within an overmold channel within a gasket channel of a flow reducer, the gasket extending within one or more cavities within the overmold channel.

10. The gasket of claim 9, wherein the gasket comprises silicone and a material of the ferrule comprises a different material.

11. The gasket of any of claims 9 and 10, further comprising a stop disposed on the outer surface of the gasket and extending about an outer edge of the gasket, the stop having a surface tapering radially toward the aperture.

12. The gasket of any of claims 9, 10, and 11, further comprising a secondary rib disposed on the outer surface of the gasket concentrically between the alignment rib and the primary rib.

13. A filtration system comprising:

a flow reducer comprising:

a first rim about a lumen;

a gasket channel in the first rim and extending about the lumen;

an overmold channel in the first rim; and

one or more cavities in the overmold channel extending radially outward;

a gasket overmolded within the first rim, the gasket extending within the one or more cavities;

a ferrule substantially aligned with the gasket; and

a clamp about the flow reducer and ferrule, the clamp compressing the flow reducer and ferrule toward each other.

14. The filtration system of claim13, further comprising an alignment rib disposed on an outer surface of the gasket and extending about an aperture of the gasket, the alignment rib configured to substantially align with an alignment channel of the ferrule.

15. The filtration system of any of claims 13 and 14, further comprising:

a primary rib disposed on an outer surface of the gasket;

an inner edge of the gasket that tapers inwardly toward an inner edge of the first rim; and

a secondary rib disposed on the outer surface of the gasket concentrically outside of the primary rib.

16. The filtration system of any of claims 13, 14, and 15, wherein the reducer is disposed between a fluid feed and a tangential flow for hollow fiber filtration unit.