WHAT IS CLAIMED IS:

1. A highly elastic annular seal assembly comprising:

a metal stabilator having inner and outer spaced-apart and projecting cantilevered annular plates coupled to a common base and forming a U-shaped geometry;

a metal seal ring having inner and outer spaced-apart and projecting annular plates coupled to a common base and having a U-shaped geometry with a central groove;

wherein the stabilator plates are configured to be disposed within the central groove between the seal ring plates, and the stabilator plates being configured to gradually urge the seal ring plates outward as the seal ring and stabilator are brought together until a portion of the first seal ring plate contacts and forms a seal against a mating body disposed within the first seal ring plate; and wherein the stabilator plates flex inwardly when a predetermined force is built up on the seal ring.

2. The seal assembly of claim 1, wherein a distal end of the inner seal ring plate comprises at least one bump protruding inwardly to form a sealing surface with the mating body.

3. The seal assembly of claim 1, wherein an exterior profile of the stabilator plates form a graduated tapered surface.

4. The seal assembly of claim 1, wherein a distal end of an interior profile of the seal ring plates form a graduated tapered surface.

5. The seal assembly of claim 1, wherein an inner surface of the inner stabilator plate includes a relief cut.

6. A highly elastic annular seal assembly configured for encircling a pipe, the seal assembly comprising:

a metal stabilator having inner and outer projecting cantilevered annular plates coupled to a common base, the first and second stabilator plates being spaced apart by a length of d;

a metal seal ring having inner and outer projecting annular plates coupled to a common base, the first and second seal ring plates being spaced apart by a length of D;

wherein the seal ring plates and the stabilator plates are configured to fit together; and

wherein the stabilator plates flex inwardly when a predetermined force is built up on the seal ring.

7. The seal assembly of claim 6, wherein D > d and the stabilator plates are disposed within a groove formed by the seal ring plates.

8. The seal assembly of claim 6, wherein a distal end of the inner seal ring plate comprises at least one bump protruding inwardly to form a sealing surface with the mating body.

9. The seal assembly of claim 6, wherein an exterior profile of the stabilator plates form a graduated tapered surface.

10. The seal assembly of claim 6, wherein a distal end of an interior profile of the seal ring plates form a graduated tapered surface.

11. The seal assembly of claim 6, wherein an inner surface of the inner stabilator plate includes a relief cut.

12. A highly elastic annular seal assembly comprising:
a stabilator having first and second spaced-apart and projecting cantilevered annular plates coupled to a base and defining a central groove therebetween;
a seal ring having first and second spaced-apart projecting annular plates coupled at a base and defining a central groove therebetween, wherein the stabilator and the seal ring are metal;
wherein the projecting stabilator plates are configured to be disposed within an interior of the projecting seal ring plates and to gradually urge the seal ring plates outward as the seal ring plates and stabilator plates come together until a portion of the first seal ring plate contacts and forms a seal against a mating body; and
wherein the stabilator plates flex inwardly when a predetermined force is built up on the seal ring.

13. The seal assembly of claim 12, wherein an exterior profile of the stabilator plates form a graduated tapered surface.

14. The seal assembly of claim 12, wherein a distal end of an interior profile of the first and second seal ring plates from a graduated tapered surface.

15. The seal assembly of claim 12, wherein an inner surface of the first stabilator plate includes a relief cut.

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