CLAIMS

WHAT IS CLAIMED IS:

1. A method of deploying a wellbore screen, the method comprising:

determining a target displacement for the expansion of the wellbore screen in the wellbore;

selecting the wellbore screen that includes an outer shroud having a plurality of perforations defined therein, the perforations arranged in a pattern which will permit the outer shroud to expand to the target displacement in response to an expansion force applied thereto, the target displacement at a limit where further expansion of the outer shroud requires an increase in the expansion force for further expansion, and wherein the limit is defined at an acceleration of the expansion force required for further radial displacement of the outer shroud;

running the wellbore screen into the wellbore on a tubing string; and

applying the expansion force to the outer shroud to expand the outer shroud to the target displacement.

2. The method of claim 1, further comprising filling an expandable chamber disposed beneath the outer shroud with a pressurized fluid and applying the expansion force to the outer shroud with the expandable chamber.

3. The method of claim 1, further comprising stretching a material defined between perforations in the outer shroud in response to applying the expansion force to displace the outer shroud beyond the limit.

4. The method of claim 3, further comprising removing slack in an arrangement of braided strands in response to applying the expansion force to displace the outer shroud up to the limit.

5. The method of claim 1, wherein determining the target displacement includes selecting a target outer diameter for the wellbore screen expanded by the target displacement wherein the target outer diameter is at least an inner diameter of the wellbore.

6. The method of claim 1, wherein applying the expansion force to the outer shroud induces the outer shroud to expand to within a predetermined tolerance of about 25% of the limit and the target displacement.

7. The method of claim 1, further comprising maintaining a longitudinal length of the outer shroud while applying the expansion force to expand the outer shroud.

8. The method of claim 1, further comprising at least one of the group consisting of injecting fluid and producing fluid through the plurality of perforations in the wellbore.

9. A wellbore screen system, comprising

a base pipe connected in a tubing string;

a filtration layer disposed around the base pipe, the filtration layer forming a tubular covering over the base pipe and operable filter against passage of particulates larger than a specified size; and

an outer shroud disposed around the base pipe, the outer shroud having a plurality of perforations defined therein, the perforations arranged in a pattern which will provide a limit at a target displacement where further expansion of the outer shroud requires an increase in the expansion force for further expansion, wherein the limit is defined at an acceleration of the expansion force required for further radial displacement of the outer shroud.

10. The wellbore screen system of claim 9, further comprising an expansion mechanism carried on the base pipe and selectively operable to apply the expansion force to the outer shroud.

11. The wellbore screen system of claim 10, wherein the expansion mechanism comprises at least one expandable chamber disposed beneath the outer shroud and responsive to being filled with a pressurized fluid to apply the expansion force to the outer shroud.

12. The wellbore screen system of claim 11, further comprising at least one drainage layer bridging a flow channel defined between adjacent expandable chambers of the at least one expandable chamber.

13. The wellbore screen system of claim 9, wherein the outer shroud comprises a plurality of braided strands arranged to include a predetermined amount of slack therein, wherein the limit is defined where the slack is removed.

14. The wellbore screen system of claim 13, wherein the outer shroud is disposed beneath the filtration layer.

15. The wellbore screen system of claim 9, wherein the outer shroud comprises a sheet metal layer comprising a plurality of elongated perforations defined therethrough to provide compliance to the outer shroud.

16. The wellbore screen system of claim 15, wherein the elongated perforations include a plurality of elongated arc-shaped perforations having a dimple defined at an approximate midsection thereof.

17. The wellbore screen system of claim 9, wherein for each unit of increase in the expansion force beyond the limit only a 10% increase in the radial displacement is induced compared to each unit increase in the expansion force below the limit.

18. A wellbore screen system, comprising

a base pipe connected in a tubing string;

a filtration layer disposed around the base pipe, the filtration layer forming a tubular covering over the base pipe and operable filter against passage of particulates larger than a specified size; and

an outer shroud disposed around the base pipe, the outer shroud having a plurality of perforations defined therein, the perforations arranged in a pattern which will provide a limit at a target displacement where further expansion of the outer shroud requires an increase in the expansion force for further expansion;

wherein the outer shroud comprises a plurality of braided strands arranged to include a predetermined amount of slack therein, wherein the limit is defined where the slack is removed.

19. The wellbore system of claim 18, wherein the limit is defined at an acceleration of the expansion force required for further radial displacement of the outer shroud.

20. The wellbore system of claim 19, wherein for each unit of increase in the expansion force beyond the limit only a 10% increase in the radial displacement is induced compared to each unit increase in the expansion force below the limit.