What is claimed is:

1. A sand control screen assembly comprising:

a base pipe having at least one opening in a sidewall thereof; and

a screen jacket positioned about the base pipe, the screen jacket including a drainage layer and a filter medium positioned about the drainage layer, the drainage layer including a plurality of circumferentially distributed axially extending ribs and a wrap wire positioned around the ribs forming a plurality of turns having gaps therebetween, the ribs including a plurality of first ribs having a first cross-sectional rib profile shaped and sized to maintain an annular space between the wrap wire and the base pipe and a plurality of second ribs having a second cross-sectional rib profile shaped and sized to provide for a gap between the second ribs and the base pipe.

2. The sand control screen assembly as recited in claim 1 wherein the screen jacket is positioned about a perforated section of the base pipe.

3. The sand control screen assembly as recited in claim 1 wherein the screen jacket is positioned about a nonperforated section of the base pipe.

4. The sand control screen assembly as recited in claim 1 wherein the filter medium further comprises a wire mesh filter medium.

5. The sand control screen assembly as recited in claim 1 wherein the first ribs have a generally-trapezoidal cross-sectional rib profile and the second ribs have a circular cross-sectional rib profile.

6. The sand control screen assembly as recited in claim 1 wherein the first ribs have a generally-trapezoidal cross-sectional rib profile and the second ribs have a rectangular cross-sectional rib profile.

7. The sand control screen assembly as recited in claim 1 wherein at least one second rib is circumferentially located between each adjacent pair of first ribs.

8. The sand control screen assembly as recited in claim 1 wherein at least two second ribs are circumferentially located between each adjacent pair of first ribs.

9. A sand control screen assembly comprising:

a base pipe having at least one opening in a sidewall thereof; and

a screen jacket positioned about the base pipe, the screen jacket including a drainage layer and a filter medium positioned about the drainage layer, the drainage layer including a plurality of circumferentially distributed axially extending ribs and a wrap wire positioned around the ribs forming a plurality of turns having gaps therebetween, the ribs including a plurality of first ribs and a plurality of second ribs, the first ribs have a nominal diameter in the radial direction that is greater than a nominal diameter in the radial direction of the second ribs to provide for a gap between the second ribs and the base pipe.

10. The sand control screen assembly as recited in claim 9 wherein the screen jacket is positioned about a perforated section of the base pipe.

11. The sand control screen assembly as recited in claim 9 wherein the screen jacket is positioned about a nonperforated section of the base pipe.

12. The sand control screen assembly as recited in claim 9 wherein the filter medium further comprises a wire mesh filter medium.

13. The sand control screen assembly as recited in claim 9 wherein the first ribs have a generally-trapezoidal cross-sectional rib profile and the second ribs have a circular cross-sectional rib profile.

14. The sand control screen assembly as recited in claim 9 wherein the first ribs have a generally-trapezoidal cross-sectional rib profile and the second ribs have a rectangular cross-sectional rib profile.

15. The sand control screen assembly as recited in claim 9 wherein at least one second rib is circumferentially located between each adjacent pair of first ribs.

16. The sand control screen assembly as recited in claim 9 wherein at least two second ribs are circumferentially located between each adjacent pair of first ribs.

17. A screen jacket for positioning around a base pipe to form a sand control screen assembly, the screen jacket comprising:

a plurality of circumferentially distributed axially extending ribs; and

a wrap wire positioned around the ribs forming a plurality of turns having gaps therebetween;

wherein the ribs include a plurality of first ribs and a plurality of second ribs, the first ribs have a nominal diameter in the radial direction that is greater than a nominal diameter in the radial direction of the second ribs.

18. The screen jacket as recited in claim 17 wherein the first ribs have a one-to-one relationship with the second ribs.

19. The screen jacket as recited in claim 17 wherein at least one second rib is circumferentially located between each adjacent pair of first ribs.

20. The screen jacket as recited in claim 17 wherein at least two second ribs are circumferentially located between each adjacent pair of first ribs.

Claims

1. A sand control screen assembly comprising:

a base pipe having at least one opening in a sidewall thereof; and

a screen jacket positioned exteriorly about the base pipe, the screen jacket including a drainage layer and a filter medium positioned exteriorly about the drainage layer, the drainage layer including a plurality of circumferentially distributed axially extending first ribs, a plurality of circumferentially distributed axially extending second ribs and a wrap wire securably attached exteriorly to the first ribs and the second ribs forming a plurality of turns having gaps therebetween,

wherein, the first ribs contact the base pipe and have a first nominal diameter that provides a first stand-off dimension between the wrap wire and the base pipe at the locations of the first ribs; and

wherein, the second ribs having a second nominal diameter that is less than the first nominal diameter such that, in a first configuration of the drainage layer, the second ribs form gaps with the base pipe and, in a second configuration of the drainage layer, the second ribs contact the base pipe to provide a second stand-off dimension, that is less than the first stand-off dimension, between the wrap wire and the base pipe at the locations of the second ribs.

2. The sand control screen assembly as recited in claim 1 wherein the screen jacket is positioned about a perforated section of the base pipe.

3. The sand control screen assembly as recited in claim 1 wherein the screen jacket is positioned about a nonperforated section of the base pipe.

4. The sand control screen assembly as recited in claim 1 wherein the filter medium further comprises a wire mesh filter medium.

5. The sand control screen assembly as recited in claim 1 wherein the first ribs have a generally-trapezoidal cross-sectional rib profile and the second ribs have a circular cross-sectional rib profile.

6. The sand control screen assembly as recited in claim 1 wherein the first ribs have a generally-trapezoidal cross-sectional rib profile and the second ribs have a rectangular cross-sectional rib profile.

7. The sand control screen assembly as recited in claim 1 wherein at least one second rib is circumferentially located between each adjacent pair of first ribs.

8. The sand control screen assembly as recited in claim 1 wherein at least two second ribs are circumferentially located between each adjacent pair of first ribs.