CLAIMS

What is claimed is:

1. A system for removing sand from inflowing fluid in a wellbore, comprising:

a base pipe having perforations; and

a sand control screen positioned around the base pipe, the sand control screen comprising:

a plurality of longitudinal ribs laid directly against an outer surface of the base pipe, the longitudinal ribs creating a plurality of flow channels oriented to enable generally axial flow along an exterior of the base pipe;

a wire transversely wrapped over the plurality of longitudinal ribs to hold the longitudinal ribs securely in place with respect to the base pipe;

a filter media surrounding the wire;

a standoff layer positioned between the wire and the filter media; and

a protective shroud surrounding the filter media.

2. The system as recited in claim 1, wherein the standoff layer ~~sand control screen further~~ comprises a mesh layer positioned between the wire and the filter media.

3. The system as recited in claim 1, wherein the sand control screen further comprises a mesh layer positioned between the filter media and the protective shroud.

4. The system as recited in claim 2, wherein the sand control screen further comprises a mesh layer positioned between the filter media and the protective shroud.

5. The system as recited in claim 1, wherein the filter media comprises a woven layer which is tubular in shape.

6. The system as recited in claim 1, wherein the sand control screen further comprises a pair of end rings to which the plurality of longitudinal ribs, the filter media, and the protective shroud are secured.

7. The system as recited in claim 6, wherein the plurality of longitudinal ribs frictionally engage the base pipe to avoid welding of the sand control screen to the base pipe.

8. The system as recited in claim 1, wherein the spacing between adjacent longitudinal ribs of the plurality of longitudinal ribs is greater than the pore size of the filter media.

9. The system as recited in claim 1, wherein the protective shroud comprises a plurality of axial ribs held together in a tubular shape by a shroud wire wrapped transversely over the plurality of axial ribs.

10. The system as recited in claim 9~~1~~, wherein the spacing between adjacent axial ~~longitudinal~~ ribs of the plurality of ~~longitudinal~~ axial ribs is greater than the pore size of the filter media.

11. A method of removing sand from inflowing fluid in a wellbore, comprising:

transversely wrapping a wire around a plurality of longitudinal ribs to hold the plurality of longitudinal ribs directly against an outer surface of a base pipe;

surrounding the wire with a filter media;

laying longitudinal shroud ribs along an outside surface of the filter media to form ~~positioning~~ a protective shroud around the filter media;

wrapping a shroud wire around the longitudinal shroud ribs to secure the longitudinal shroud ribs; and

positioning a standoff layer between the filter media and the protective shroud.

12. The method as recited in claim 11, further comprising positioning a standoff layer between the wire and the filter media.

~~13. The method as recited in claim 11, further comprising positioning a standoff layer between the filter media and the protective shroud.~~

13~~4~~. The method as recited in claim 11, further comprising positioning a mesh layer between the wire and the filter media and between the filter media and the protective shroud.

~~15. The method as recited in claim 11, wherein positioning comprises forming the protective shroud around the filter media with a plurality of axial ribs held in a tubular shape by a shroud wire wrapped transversely over the plurality of axial ribs.~~

14~~6~~. The method as recited in claim 11, further comprising securing the plurality of longitudinal ribs to a pair of end rings.

15~~7~~. The method as recited in claim 11, further comprising forming a friction fit between the plurality of longitudinal ribs and the base pipe to avoid any welding to the base pipe.

16~~8~~. The method as recited in claim 11, further comprising forming the base pipe as a perforated base pipe beneath the plurality of longitudinal ribs.

17~~9~~. The method as recited in claim 16~~8~~, further comprising welding axial ends of the plurality of longitudinal ribs to adjacent end rings.

~~20~~18. A system for removing sand from inflowing fluid in a wellbore, comprising:

a base pipe; and

a sand control screen, comprising:

a drainage layer disposed around the base pipe;

a filter media surrounding the drainage layer;

a standoff layer between the drainage layer and the filter media; and

a protective shroud surrounding the filter media, the protective shroud comprising a plurality of axial ribs disposed along the exterior of the filter media and held together in a tubular shape by a shroud wire wrapped transversely over the plurality of axial ribs.

~~21~~19. The system as recited in claim ~~20~~18, wherein the drainage layer comprises a plurality of longitudinal ribs held directly against an outer surface of the base pipe by a transversely wrapped wire.

~~22. The system as recited in claim 20, further comprising positioning a standoff layer between the drainage layer and the filter media.~~

~~23~~20. The system as recited in claim ~~22~~18, further comprising ~~positioning~~ another standoff layer between the filter media and the protective shroud.