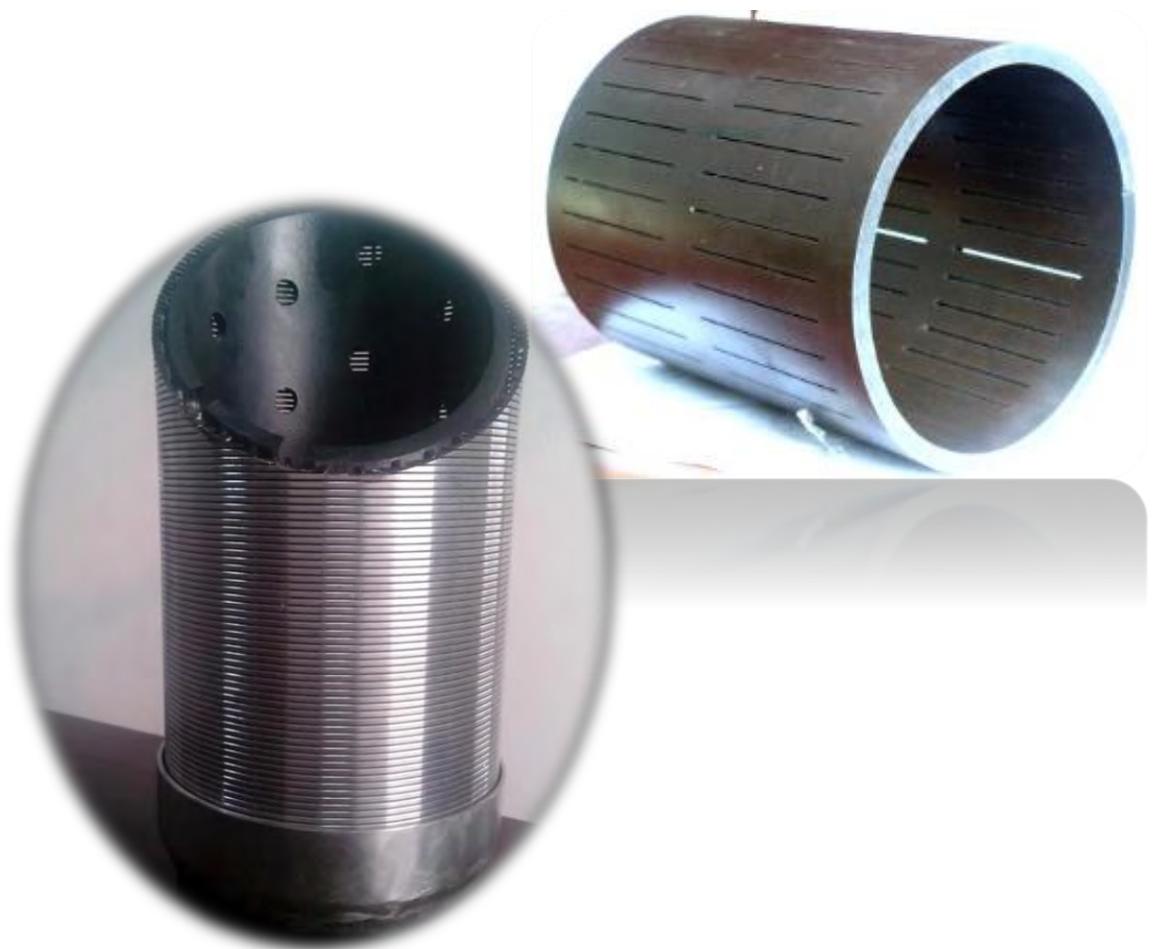




PetroPi Industries Ltd.

Sand Control Screen Products



SAND CONTROL SCREEN PRODUCTS

Laser slotted screen liner

Elastic screen

Sintered filter clothed sand control screen

Precisely screen liner

PRS screen liner

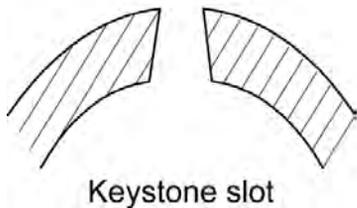
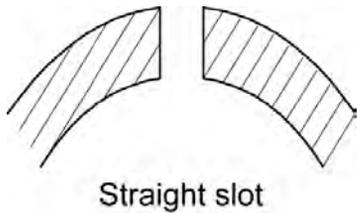


LASER SLOTTED SCREEN LINER

Applications

Laser slotted screen liners are used in Heavy Oil Well Screen. Slot width from .006 inch up to .250 inch. The slots are usually between one and a half and two inches long.

The slots can be straight or keystone shaped. The keystone slot is narrower on the outside surface of the pipe than on the inside. Slots formed in this way have an inverted “V” cross-sectional area and are less prone to plugging because any particle passing through the slot at the outside diameter (OD) of the pipe will continue to flow through, rather than lodging within the slot. While the slotted liners are usually less costly than wire-wrapped screens.



LASER SLOTTED SCREEN LINER

Specifications

Item	Slot width, mm									
	0.15	0.20	0.30	0.35	0.40	0.45	0.50	0.60	0.70	0.80
Slot width ALW, mm	±0.05									
Sand control Particle diameter, mm ≥	0.20	0.25	0.35	0.40	0.45	0.50	0.55	0.65	0.75	0.85
Slot length, mm	10---3000									
Screen liner OD, mm	73, 88.9, 114.3, 127, 139.7, 177.8 , 244.48									
Screen liner length, mm	3 00—12 000									



LASER SLOTTED SCREEN LINER

Features

- high mechanical strength: Filter layer is pipe body itself
- durability, the same life with casing,
- Precise slots opening with width accuracy of $\pm 0.03\text{mm}$
- keystone shaped: allows a particle to pass through the screen if it can traverse the minimum restriction at the OD of the screen
- High rigidity, robust, and cost effective



ELASTIC SCREEN

Applications

It mainly applies to sand control of oil, gas water wells, and can meet internal sand control and initial sand control completion of vertical, directional and horizontal wells

Specifications

- Tubular Sizes: 73mm, 89mm, 102mm, 114mm, 127 mm , 140 mm, 177.8 mm
- Particle size ≥ 0.1 mm
- Permeability : 50~120 μm^2
- Temperature: 350 °C
- Pressure ≥ 22 MPa
- Seepage area > 900 cm^2/m

Features

- Single-layer overall structure, big bore
- Self-cleaning, deplugging, and inoxidizability
- High external pressure resistance and torsional behavior
- High success rate of construction.



SINTERED FILTER CLOTHED SAND CONTROL SCREEN

Applications

It mainly applies to sand control of oil, gas water wells, and can meet internal sand control and initial sand control completion of vertical, directional and horizontal wells

Specifications

- Seepage area: $260 \times 10^3 \sim 600 \times 10^3 \text{ mm}^2/\text{m}$
- Tensile strength: 340~496 MPa
- Particle size $\geq 0.1 \text{ mm}$
- Permeability $> 32 \mu\text{m}^2$

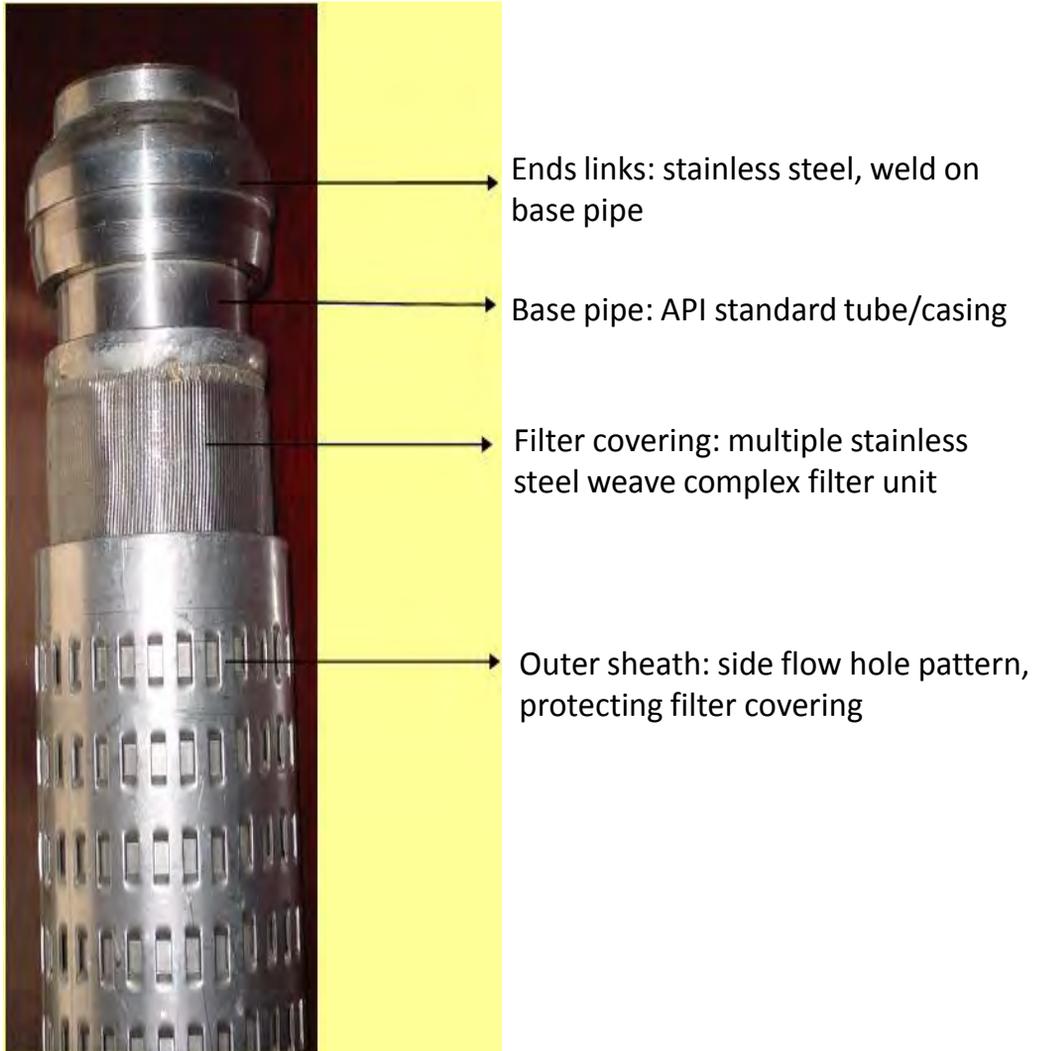
Features

- High strength pipe with multi-layer structure
- High discharge capacity with large filter area
- Low sensitivity to shale with the unique mesh size design (Pipe OD has smaller mesh size while ID has larger mesh size), strong self-cleaning ability
- Abrasion resistant filter material for high sand producing wells



PRECISELY SCREEN LINER

Designs



PRECISELY SCREEN LINER

Designs



Filter covering



Microstructure of filter media

Woven wire mesh features: hole size can be controlled, holes distribute uniformly, holes don't become deformed



- First layer filter media
- First diffusion media
- Second layer filter media
- Second diffusion media
- Inner sheath
- Base pipe

Internal Structure of Filter Covering



Outer sheath structure

PRECISELY SCREEN LINER

Specifications

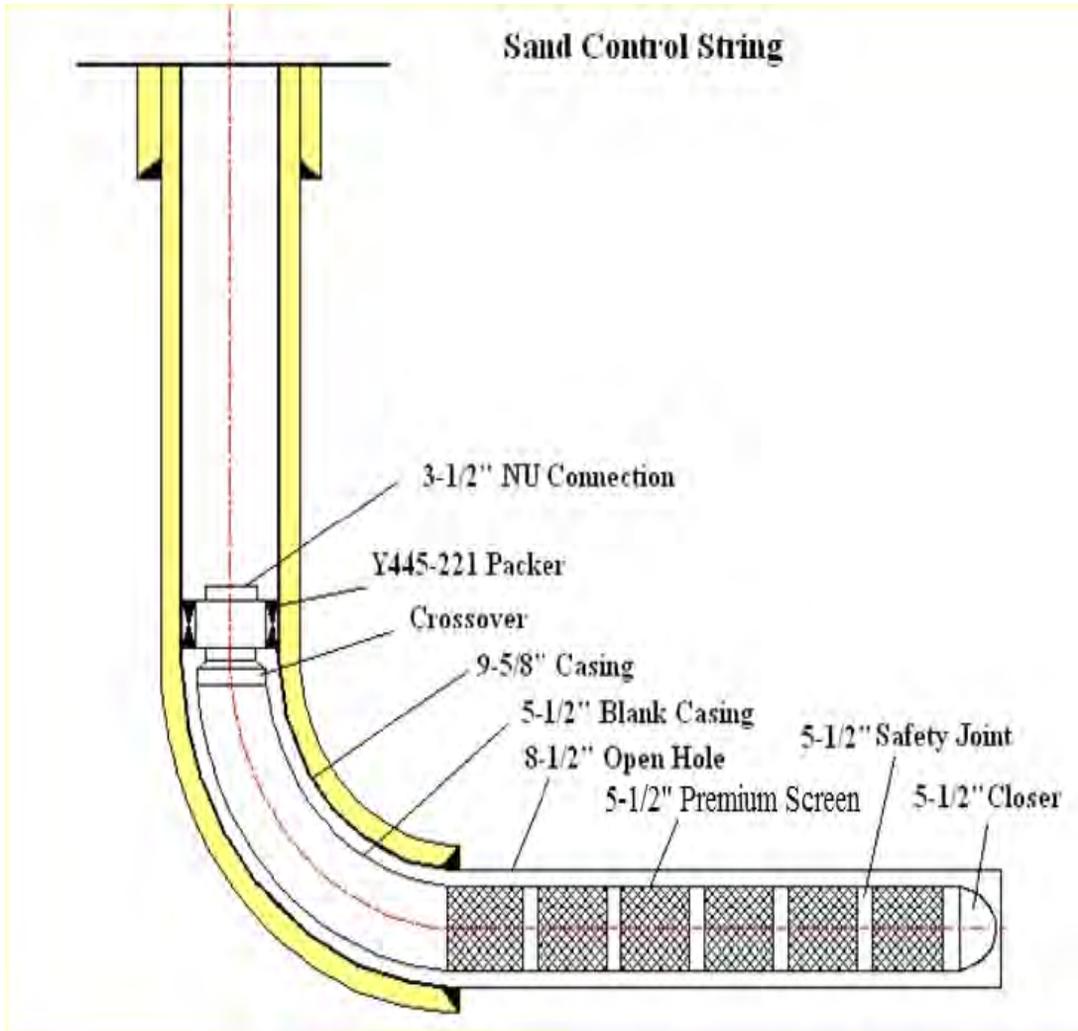
Base pipe		Precision slot avoid sand	
OD	weight (kg/m)	MAX OD	weight (kg/m)
2-3/8"	6.85	3"(76mm)	11
2-7/8"	9.54	3.5"(89mm)	14
3-1/2"	13.7	4.3"(110mm)	18.5
4"	14.2	4.9"(124mm)	20
4-1/2"	17.3	5.3"(135mm)	22.5
5"	22.4	5.8"(148mm)	27
5-1/2"	25.3	6.2"(158mm)	32
6-5/8"	35.8	7.3"(186mm)	42
7"	38.7	7.7"(196mm)	45



PRECISELY SCREEN LINER

Application 1:

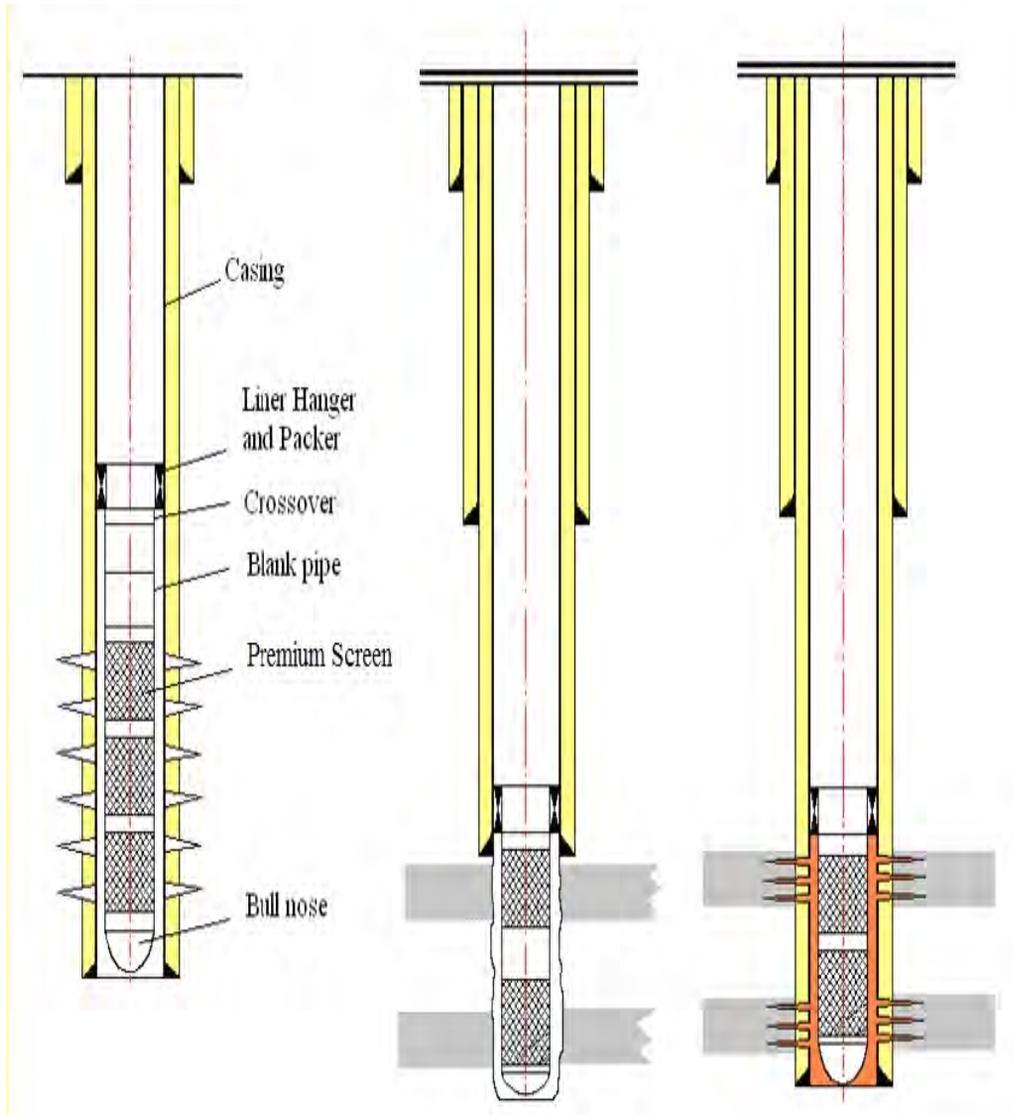
Horizontal well bare hole liner completion



PRECISELY SCREEN LINER

Application 2:

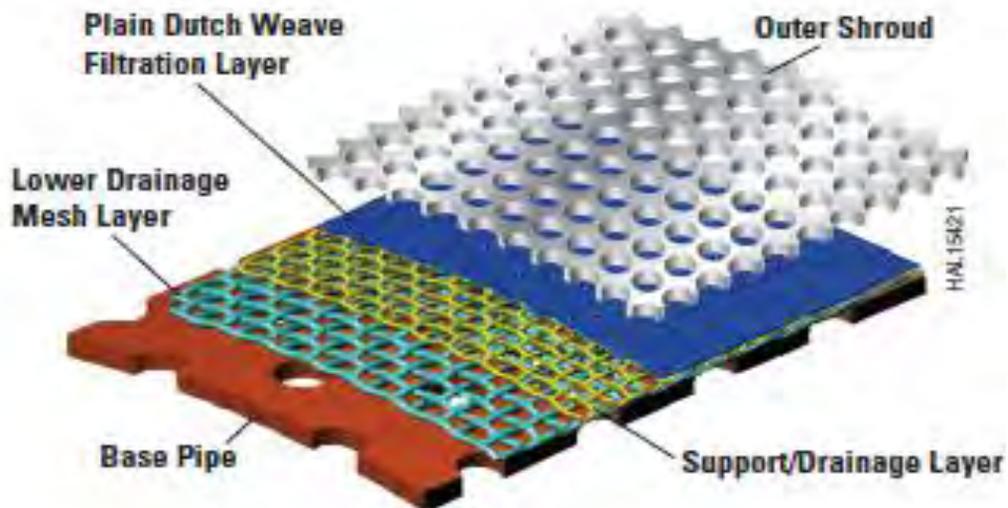
Casing hanging liner completion



PRS SCREEN LINER

Applications

- Horizontal well open hole screen completion, direct screen sand control.
- Casing perforation completion, complete with gravel pack, screen block gravel.
- Casing suspension sieve tube completion, screen liner direct sand control.
- Hanging directly under the pump used for slight sand wells.



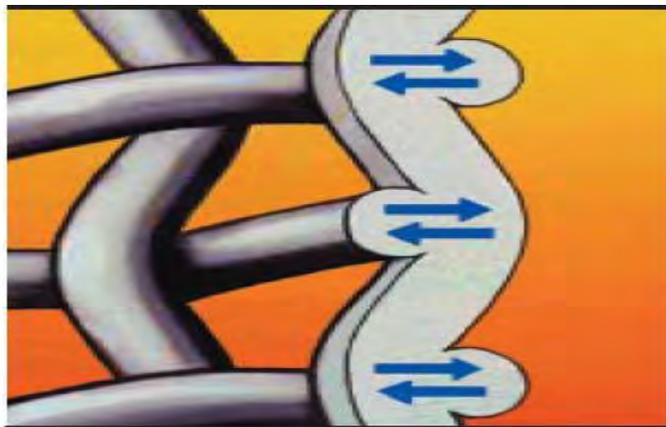
Multi layers engineered design



PRS SCREEN LINER

Features

- Premium shrouded, sintered laminate screen, engineered for optimum inflow area
- 316L SS or Alloy 20 woven wire mesh
- Diffusion bonded laminate construction
- Plain Dutch weave filter media
- Multiple drainage layers provide cross flow
- Precise particle size control
- Custom micron ratings from 60 to 400 μ
- Micron rating confirmed w/ glass bead testing
- Surface filter media for easy cleaning
- High resistance to erosion and plugging
- High dirt holding capacity
- High pressure tolerance
- 40 - 60% inflow area to provide lower pressure drops, increased production rates and longer well life
- high-flow: an extended reach and/or long open hole applications



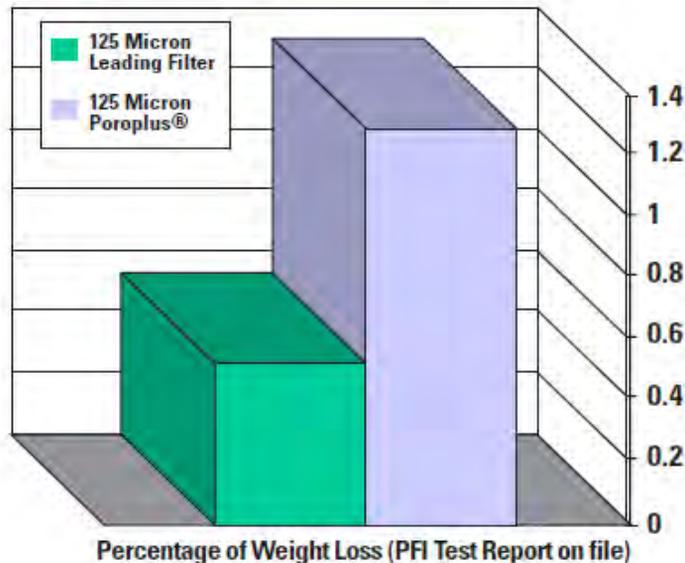
Media Ductility (Diffusion Bond)



PRS SCREEN LINER

Specifications

DIMENSIONAL DATA						
Base Pipe O.D. in. (mm)	Number of Base Pipe Holes Per Foot	Base Pipe Hole Size in. (mm)	Open Area of Base Pipe Holes in ² /ft (cm ² /m)	PoroMax [®]		Screen Area in ² /ft (cm ² /m)
				Assy OD in. (mm) Max	Weight lbs/ft (Kg/m)	
1.05 (26.67)	54	5/16 (7.87)	4.1 (86.80)	1.66 (42.16)	1.69 (2.52)	46 (973.82)
1.32 (33.53)	66	5/16 (7.87)	5.1 (107.87)	1.92 (48.77)	2.00 (2.98)	56 (1185.52)
1.66 (42.16)	78	5/16 (7.87)	6.0 (127.02)	2.27 (57.66)	2.40 (3.58)	69 (1460.73)
1.9 (48.26)	42	3/8 (9.65)	4.6 (97.38)	2.44 (61.98)	2.69 (4.01)	77 (1630.09)
2.06 (52.32)	42	3/8 (9.65)	4.6 (97.38)	2.69 (68.33)	2.88 (4.29)	84 (1778.28)
2.38 (60.45)	54	3/8 (9.65)	6.0 (127.02)	3.00 (76.20)	3.24 (4.83)	95 (2011.15)
2.88 (73.15)	66	3/8 (9.65)	7.3 (154.54)	3.50 (88.90)	3.82 (5.70)	113 (2392.21)
3.5 (88.90)	78	3/8 (9.65)	8.6 (182.06)	4.12 (104.65)	4.54 (6.77)	137 (2900.29)
4.0 (101.60)	90	3/8 (9.65)	9.9 (209.58)	4.62 (117.35)	5.12 (7.63)	156 (3302.52)
4.5 (114.30)	102	3/8 (9.65)	11.3 (239.22)	5.11 (129.79)	5.70 (8.50)	175 (3704.75)
5.0 (127.00)	114	3/8 (9.65)	12.6 (266.74)	5.62 (142.75)	6.28 (9.36)	194 (4106.98)
5.5 (139.70)	126	3/8 (9.65)	13.9 (294.26)	6.13 (155.70)	6.86 (10.23)	213 (4509.21)
6.63 (168.40)	138	3/8 (9.65)	15.3 (323.90)	7.28 (184.91)	8.17 (12.18)	255 (5398.35)
7.0 (177.80)	150	3/8 (9.65)	16.6 (351.42)	7.66 (194.56)	8.60 (12.82)	269 (5694.73)
7.63 (193.80)	162	3/8 (9.65)	17.9 (378.94)	8.30 (210.82)	9.33 (13.91)	293 (6202.81)
8.63 (219.20)	186	3/8 (9.65)	20.5 (433.99)	9.32 (236.73)	10.49 (15.64)	331 (7007.27)
9.63 (244.60)	210	3/8 (9.65)	23.2 (491.14)	10.34 (262.64)	11.65 (17.37)	368 (7790.56)



Results: PoroMax lasts 2.4 times longer against erosion
(15 times longer in Air Flow Erosion Test).
Data can be supplied upon request.

PRS SCREEN LINER

Torque and Tensile Testing



Glass Bead Test



Glass bead testing is the most accurate method to confirm micron rating.

PRS SCREEN LINER

Weldment Shear Test



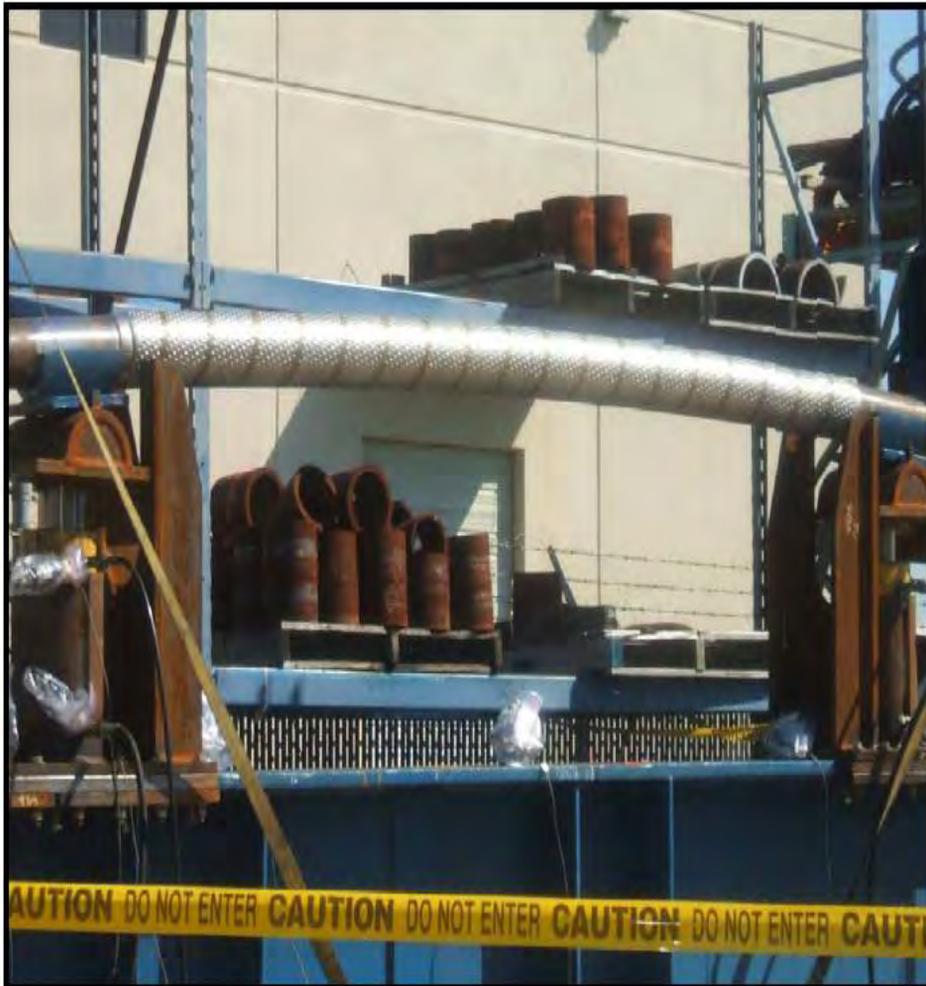
Specimen ID	Ultimate Load (klbs)	Location of Breaks / Failures
E1	295+	None
E2	295+	None

Collapse Test



Even under extreme failure loads, the screen maintains reliable sand control

Bending Test



Tests recorded bend was successfully applied to the base pipe with no induced damage to the filter media