

"Fluid conditioning systems"



Odessa Separator Inc.

Maximizing production performance with integrated artificial lift solutions.



Odessa Separator Inc. is a world leader in downhole fluid conditioning systems.

Our Domestic & International Offices



USA Office

- ★ Odessa (Principal Office)
- ☆ Hobbs
- ☆ San Antonio
- ☆ Montana

International Office

- **☆** Colombia
- **☆** Romania

Dom. Sales

- **★** California
- ★ New Mexico
- ★ Eagle Ford
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Inter. Sales

- ★ Canada
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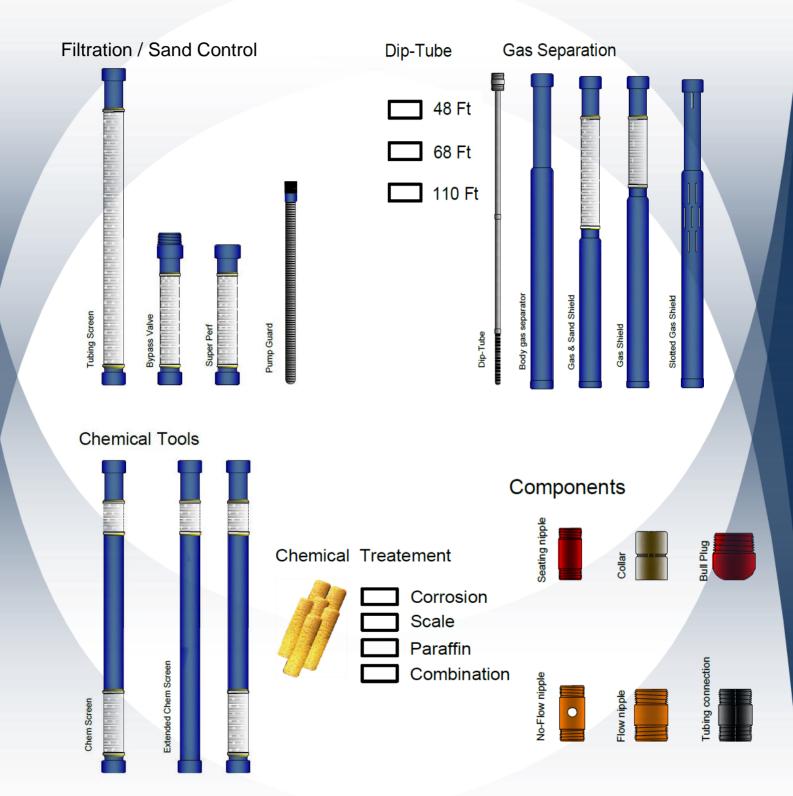


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Our Products





What Causes Sand Failures?

Sand Failure happens when sand is pumped with the liquid to the surface, which is thousands of feet from the pump. Naturally the heavier sand will fall back on top of the plunger. It gets crushed and works its way between the barrel and plunger causing sand cutting, which causes:

- Pump Failure
- Rod Failure
- •Tubing Failure
- Short run life



Types of sand

In choosing a filter size it is important to know what type of sand causes the problem.

There are two main types of sand

Formation sand. This sand is smaller than other sand and usually irregular in size.

Frac. Sand. This type of sand is larger than formation sand, very uniform, and usually most abrasive

What is the slot size?

Slot size is the opening or gap between the V-wires, which determines the filtration size.

Example:

An 18 slot screen has an opening of 0.018 inch.

How do I determine slot size?

Larger slot opening will have less plugging. Ideally filter 70% of Sand.

How do I determine length?

Length is a critical factor in sand screen use. Most plugging occurs when

the fluid velocity is too fast, causing sand to become wedged in the opening.

The longer the length, the slower the velocity.

Can I reuse a sand screen?

In most cases the re-use of a sand screen is not recommended.

If you re-use a sand screen that is partially plugged, it will have a shorter run life. The pulling cost is incurred, would greatly outweigh any savings that a used sand screen would provide.





ze	Frac Sar		
Recommended slot size	US mesh Size	Micron	Slot size
nded	40/60	450-250	8 to 12
mmei	20/40	841-400	12 to 15
Reco	16/30	1190-595	15 to 20
	12/20	1680-841	20 to 25

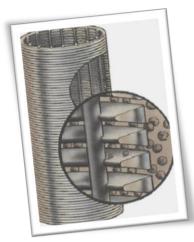


Tubing Screen

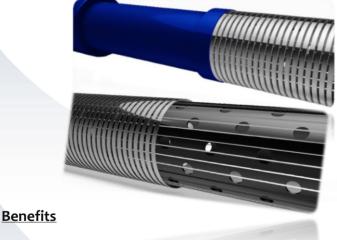
Odessa Separator's Tubing Screens are used for maximizing artificial lift run life by separating the harmful abrasives.

The TUBING SCREEN is made up of a screen jacket that is placed over perforated tubing with EUE thread. The Tubing Screen is designed specifically for wells with high lifting cost associated with sand failures. The Tubing screen is run below the pump intake, in place of the perforated pup joint. This allows sand to be filtered out between the tubing and casing.

Tubing Screen Data:







•	Reduces sand failure.

- Large intake area, reducing pressure drop.
- "V" shaped design provides a small contact area, reduces flow friction.
- A wide range of filtration slot sizes.
- Corrosion resistant screen.
- Strong pipe base design.
- Screen jacket is smaller O.D. than the standard tubing collar.

Tubing Screen 8 ft						
Tubing Size	Slot Open Area Size (in^2)		Weight (Lbs)			
	8	45.3	65			
	12	65.3	65			
2-3/8"	15	79.2	65			
	20	100.9	65			
	50	198.1	65			
	8	54.4	80			
	12	78.4	80			
2-7/8"	15	95.2	80			
	20	121.1	80			
	50	237.9	80			
	8	63.5	100			
	12	91.5	100			
3-1/2"	15	111.1	100			
	20	141.4	100			
	50	277.8	100			

Tubing Screen 23.5 ft						
Tubing Size	Slot	Open Area	Weight			
1 dbing Size	Size	(in^2)	(Lbs)			
	8	135.8	195			
	10	166.4	195			
	12	195.8	195			
2-3/8"	15	237.7	195			
	20	302.6	195			
	50	594.3	195			
	75	756.4	195			
	8	163.2	240			
	10	199.9	240			
	12	235.1	240			
2-7/8"	15	285.5	240			
	20	363.4	240			
	50	713.8	240			
	75	908.5	240			
	8	190.5	300			
	10	233.3	300			
	12	274.5	300			
3-1/2"	15	333.3	300			
	20	424.2	300			
	50	833.3	300			
	75	1060.5	300			



Pump Guard Screen

Odessa Separator's Pump Guard Screen conditions the fluid prior to pump intake,

PUMP GUARD SCREEN is a V-wire screen spirally wound onto an internal framework of longitudinal ribs. The outer wrap wire and ribs are made of high resistance stainless steel, precise electric Resistance welding provides high strength to the joint. The spacing between two adjacent turns of (V) wire is a totally controlled process providing accurate slot size in the final product.



Pump Guard Screen Data:

	Size	Open Area (in^2)						
	Slot	9 in	2 ft	3 ft	6 ft	8 ft	10 ft	
	6	2.6	7.1	10.6	21.2	28.3	35.4	
E .	12	4.9	13.0	19.5	38.9	51.9	64.9	
Screen	18	6.7	18.0	27.0	53.9	71.9	89.8	
ß	25	8.6	22.9	34.3	68.7	91.6	114.5	
-	35	10.8	28.7	43.0	86.1	114.8	143.4	
	50	13.3	35.4	53.1	106.2	141.6	177.0	
	75	16.2	43.3	64.9	129.8	173.0	216.3	
	125	19.7	52.6	78.9	157.8	210.5	263.1	

	Size	Open Area (in^2)						
	Slot	9 in	2 ft	3 ft	6 ft	8 ft	10 ft	
<u>_</u>	6	3.3	8.4	13.4	26.8	35.7	44.7	
Screen	12	6.1	16.4	24.6	49.1	65.5	81.9	
Ş	18	8.5	22.7	34.0	68.0	90.7	113.4	
4	25	10.8	28.9	43.4	86.7	115.6	144.6	
1-1/4"	35	13.6	36.2	54.3	108.6	144.9	181.1	
_	50	16.8	44.7	67.0	134.0	178.7	223.4	
	75	20.5	54.6	81.9	163.8	218.4	273.1	
	125	24.9	66.4	99.6	199.3	265.7	332.1	

	Size	Open Area (in^2)					
	Slot	9 in	2 ft	3 ft	6 ft	8 ft	10 ft
_	6	3.8	10.2	15.3	30.7	40.9	51.1
Screen	12	7.0	18.7	28.1	56.3	75.0	93.8
Σ	18	9.7	26.0	38.9	77.9	103.9	129.8
.5.	25	12.4	33.1	49.6	99.3	132.4	165.5
1-1/2"	35	15.5	41.4	62.2	124.4	165.8	207.3
_	50	19.2	51.1	76.7	153.4	204.6	255.7
	75	23.4	62.5	93.8	187.5	250.0	312.5
	125	28.5	76.0	114.0	228.1	304.1	380.1

- Effective sand control.
- Reduces potential pump damage and maintenance cost.
- Clogging resistant slot design.
- The geometric shape provides large percentage open area.
- Stainless steel material for corrosive applications.
- Available in a large selection of length and slot sizes.



Super Perf

Odessa Separator's Super Perf was made to replace the perforated pup joint to improve filtration

Odessa Separator's SUPER PERF is a 4 ft. version of the tubing screen with 0.075" slot screen designed to replace the traditional perforated pup joint. The SUPER PERF has 27 times the open area of conventional perforated pup joints. The 75 slot screen jacket allows for greater overall filtration to improve run time.







Super Perf Data:

Super Perf 4 ft						
T. 1.1 Ci	Slot	Open Area	Weight			
Tubing Size	Size	(in^2)	(Lbs)			
2-3/8"	75	100.9	32.5			
2-7/8"	75	121.1	43			
3-1/2"	75	141.4	52			

- Reduces failures due to large particles.
- Large intake area reduces pressure drop.
- (V) Shaped design provides a small contact area, reduces flow friction.
- Corrosion resistant screen.
- Strong pipe base design.
- Screen jacket is smaller O.D. than the standard tubing collar.

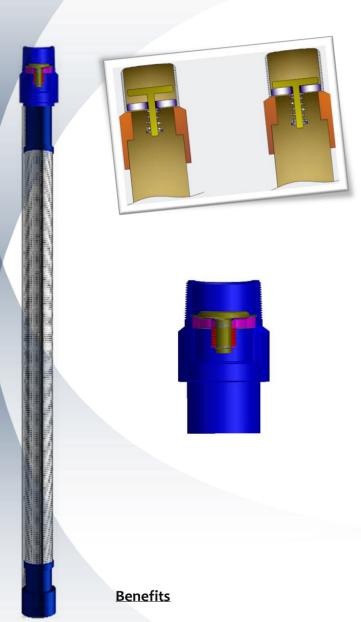


Bypass Valve / Intake System

Odessa Separator's Bypass Valve was made for extending pump's run life.

Once filtration is no longer effective, valve opens to allow continued fluid flow through the 75 slot screen intake providing greatly extended run times. The spring loaded valve remains closed until 33 PSI is reached.

BYPASS VALVE is run in place of bull plug and can be used in conjunction with Tubing Screens and Gas and Sand Shields.





Bypass Valve Data:

Bypass Valve 4 ft							
Tubing Size	Slot Size	Open Area (in^2)	Weight (Lbs)	Length (in)			
2-3/8"	75	100.9	35.5	48			
2-7/8"	75	121.1	46	48			
3-1/2"	75	141.4	55	48			

- Extend equipment run life.
- Large particle filtration.
- Valve is replaceable.



Flow Chart Guide Lines

Well Classification Guidelines

AVERAGE WELL

Normal solid production, no asphaltine or scale.

BAD WELL

Larger than average solid production-small amount of scale or asphaltine.

SEVERE WELL

Larger than average solid production-larger amount of scale

Slot Size	Description	Plugging Potential
0.006-0.008	Fine Formation Sand	High
0.012	Med Formation Sand 20-40 Frac Sand	Medium
0.015	Large Formation Sand 16-30 Frac Sand	Medium
0.018-0.020	Small Trash 12-20 Frac Sand	low
0.025-0.035	Med Trash — No Sand	Medium
0.050	Large Trash No Sand Large Iron Particles	Medium
0.075	Large Trash No Sand Large Iron Particles	low

Find the correct slot size then look up liquid volume chart for length recommendation



Sieve analysis is available to determine the appropriate slot size for each application.



Flow Chart (US BBL/D)

Tubing Screen 8 ft

Size	CI. 1	Flow Chart (US BFPD)			
	Slot	Average	Bad	Severe	
	8	68	32	14	
	12	196	98	46	
2-3/8"	15	253	143	71	
	20	393	242	136	
	50	991	660	406	

	c:	ci .	Flow Chart (US BFPD)				
	Size	Slot	Average	Severe			
		8	81	38	16		
		12	235	118	55		
	2-7/8"	15	305	171	86		
		20	472	291	163		
		50	1190	793	488		

C.	CI.	Flow Chart (US BFPD)				
Size	Slot	Average	Bad	Severe		
	8	95	44	19		
	12	275	137	64		
3-1/2"	15	356	200	100		
	20	552	339	191		
	50	1389	926	570		

Tubing Screen 23.5 ft

Size	Slot	Flow Chart (US BFPD)			
Size	5100	Average Bad	Severe		
	8	204	95	41	
	10	374	180	79	
	12	587	294	137	
2-3/8"	15	761	428	214	
	20	1180	726	409	
	50	2972	1981	1219	
	75	4538	3177	2118	

Size	Slot	Flow Chart (US BFPD)				
Size	Siot	Average Bad		Severe		
	8	245	114	49		
	10	450	216	94		
	12	705	353	165		
2-7/8"	15	914	514	257		
	20	1417	872	491		
	50	3569	2379	1464		
	75	5451	3816	2544		

Size	Slot	Flow Chart (US BFPD)			
Size	5101	Average	Bad	Severe	
	8	286	133	57	
	10	525	252	110	
	12	824	412	192	
3-1/2"	15	1067	600	300	
	20	1654	1018	573	
	50	4167	2778	1709	
	75	6363	4454	2970	

Super Perf 4 ft

Size	Slot	Flow Chart (US BFPD)		
Size	Slot	Average	Bad	Severe
2-3/8"	75	605	424	283
2-7/8"	75	727	509	339
3-1/2"	75	849	594	396

Bypass Valve

Size	Slot Open Valve		Flow Chart (US BFPD)		
Size	Siot	(PSI)	Average	Bad	Severe
2-3/8"	75	33	605	424	283
2-7/8"	75	33	727	509	339
3-1/2"	75	33	849	594	396





Pump Guard 1"

C'	61-4	Flow Chart (US BFPD)		
Size	Slot	Average Bad	Severe	
	6	4	2	1
	12	15	7	3
	18	24	14	8
0"	25	36	23	13
x 9"	35	49	31	18
	50	67	44	27
	75	97	68	45
	125	173	157	133

C.	CI.	Flow Chart (US BFPD)			
Size	Slot	Average Bad	Severe		
	6	10	4	2	
	12	39	20	9	
	18	64	37	20	
21	25	96	60	35	
x 2'	35	129	83	49	
	50	177	118	73	
	75	260	182	121	
	125	463	421	356	

6'	61-4	Flow Chart (US BFPD)			
Size	Slot	Average	Bad	Severe	
	6	15	7	3	
	12	59	29	14	
	18	96	56	30	
21	25	144	90	52	
x 3'	35	194	124	73	
	50	266	177	109	
	75	389	273	182	
	125	694	631	535	

Size	Slot	Flow Chart (US BFPD)			
Size	Siot	Average	Bad	Severe	
	6	29	13	5	
/	12	117	58	27	
	18	191	112	61	
x 6'	25	289	180	104	
X O	35	287	184	108	
	50	531	354	218	
	75	779	545	363	
	125	1388	1262	1069	

Size	Slot	Flow Chart (US BFPD)			
Size	Stot	Average	Bad	Severe	
	6	39	17	7	
	12	116	58	27	
	18	255	150	81	
x 8'	25	385	240	139	
х 8	35	517	331	195	
	50	708	42	290	
	75	1038	727	484	
	125	1851	1683	1426	

Size	Slot	Flow Chart (US BFPD)			
	Slot	Average	Bad	Severe	
	6	49	22	9	
	12	198	99	46	
	18	318	187	101	
x 10'	25	481	301	173	
X 10	35	645	414	243	
	50	885	590	363	
	75	1298	909	606	
	125	2314	2103	1783	

Pump Guard 1-1/4"

Size	61.4	Flow Chart (US BFPD)		
Size	Slot	Average	Bad	Severe
	6	5	2	1
	12	18	9	4
	18	30	18	10
0"	25	45	28	16
x 9"	35	61	39	23
	50	84	56	34
	75	123	86	57
	125	219	199	169

6:	CI .	Flow Chart (US BFPD)		
Size	Slot	Average	Bad	Severe
	6	12	5	2
	12	49	25	11
	18	81	47	26
21	25	121	76	44
x 2'	35	163	104	61
	50	224	149	92
	75	328	229	153
	125	584	531	450

Size	CI .	Flow Chart (US BFPD)		
	Slot	Average	Bad	Severe
	6	19	8	3
	12	74	37	17
	18	121	71	38
21	25	182	114	66
x 3'	35	244	157	92
	50	335	223	137
	75	491	344	229
	125	876	796	675

Size	Slot	Flow Chart (US BFPD)		
Size	3101	Average	Bad	Severe
	6	37	17	7
	12	147	74	34
	18	241	142	76
x 6'	25	364	228	131
X O	35	489	313	184
	50	670	447	275
	75	983	688	459
	125	1753	1593	1350

Size	Slot	Flow Chart (US BFPD)			
Size	3100	Average	Bad	Severe	
	6	49	22	9	
	12	197	98	46	
	18	322	189	102	
x 8'	25	486	303	175	
Α 0	35	652	418	246	
	50	894	596	367	
	75	1310	917	612	
	125	2337	2124	1800	

Size	Slot	Flow Chart (US BFPD)		
Size	5100	Average	Bad	Severe
	6	62	28	11
	12	246	123	57
	18	402	236	127
x 10'	25	607	380	219
X 10	35	815	522	307
	50	1117	745	458
	75	1639	1147	765
	125	2921	2655	2250



Pump Guard 1-1/2"

C:	er .	Flow Chart (US BFPD)				
Size	Slot	Average	Bad	Severe		
	6	5	2	1		
	12	21	11	5		
	18	34	20	11		
0"	25	52	33	19		
x 9"	35	70	45	26		
	50	96	64	39		
	75	140	98	66		
	125	251	228	193		

01	CI.	Flow Chart (US I			
Size	Slot	Average	Bad	Severe	
	6	14	6	3	
	12	56	28	13	
	18	92	54	29	
21	25	139	87	50	
x 2'	35	186	119	70	
	50	256	170	105	
	75	375	263	175	
	125	668	608	515	

Size	CI .	Flow Chart (US BFPD)			
	Slot	Average	Bad	Severe	
	6	21	9	4	
	12	84	42	20	
	18	138	81	44	
21	25	208	130	75	
x 3'	35	280	179	105	
	50	384	256	157	
	75	563	394	263	
	125	1003	911	772	

Size	Slot	Flow Chart (US BFPD)			
Size	Stot	Average	Bad	Severe	
	6	42	19	8	
	12	169	84	39	
	18	276	162	88	
x 6'	25	417	261	150	
X 6,	35	560	359	211	
	50	767	511	315	
	75	1125	788	525	
	125	2006	1824	1545	

Size	Slot	Flow	SFPD)	
Size	Stot	Average	Bad	Severe
	6	56	25	10
	12	225	113	53
	18	368	216	117
x 8'	25	556	348	200
X O	35	746	478	281
	50	1023	682	420
	75	1500	1050	700
	125	2674	2431	2060

Size	Slot	Flow	Flow Chart (US BFPD)	
Size	Siot	Average	Bad	Severe
	6	70	32	13
	12	281	141	66
	18	460	270	146
x 10'	25	695	434	251
X 10	35	933	598	351
	50	1279	852	525
	75	1875	1313	875
	125	3343	3039	2575

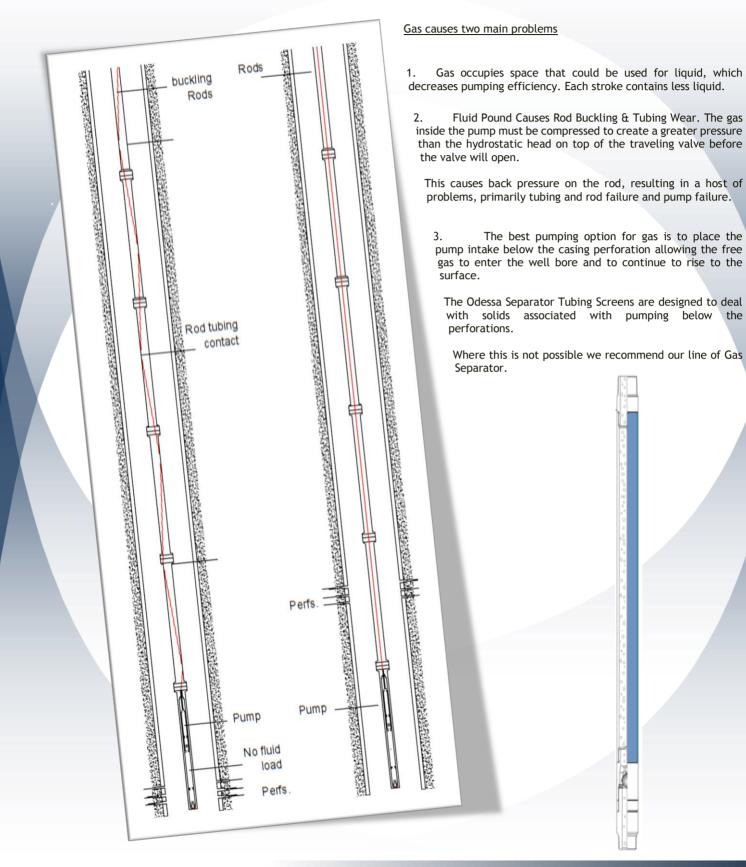






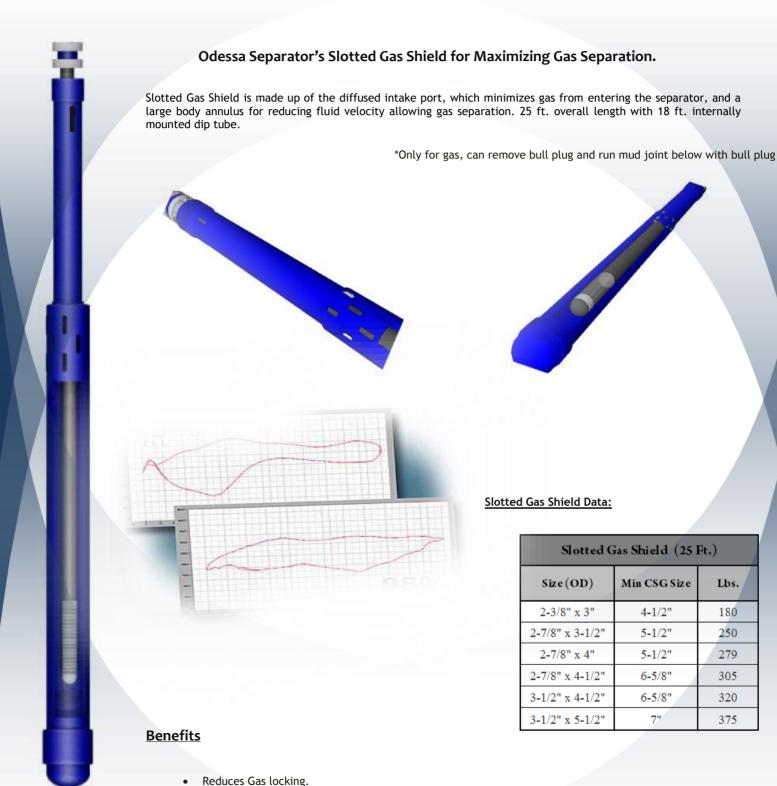


Gas Problems





Slotted Gas Shield



Increases pumping efficiency.

Min CSG Size

4-1/2"

5-1/2"

5-1/2"

6-5/8"

6-5/8"

7"

Lbs.

180

250

279

305

320

375



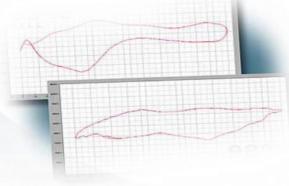
Gas Shield

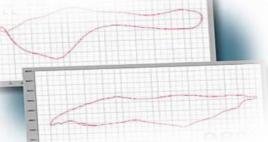
Odessa Separator's Gas Shield for Maximizing Gas Separation.

Gas Shield is made up of the diffused intake port which minimizes gas from entering the separator and a large body annulus for reducing fluid velocity allowing for gas separation. 3 ft. intake area with 75 slot screen. 25 ft. overall length with 18 ft. internally mounted dip tube.

Gas Shield is for Severe Gas and larger particle filtration.







Benefits

- Reduces gas locking.
- Increases pumping efficiency.
- Provides Large particle filtration
- Graduated slots for more even intake



Gas Shield Data:

Ga	Gas Shield (25 Ft.) 75 Slot		
Size (OD) Min CSG Size		Screen Open Area (in2)	Lbs.
2-3/8" x 3"	4-1/2"	101	180
2-7/8" x 3-1/2"	5-1/2"	121	350
2-7/8" x 4"	5-1/2"	121	279
2-7/8" x 4-1/2"	6-5/8"	121	305
3-1/2" x 4-1/2"	6-5/8"	141	320
3-1/2" x 5-1/2"	7"	141	375



Gas and Sand Shield

Odessa Separator's Gas and Sand Shield Combines Gas Separation and Sand Control.

Gas & Sand Shield is made up of the diffused intake port which minimizes gas from entering the separator and a large body annulus for reducing fluid velocity allowing for gas separation. 25 ft. overall length with 21 ft. internally mounted dip tube.

The Gas & Sand Shield is designed to provide gas separation and sand filtration. 10 ft. intake area is available with 12 slot or 15 slot





Gas and Sand Shield Data:

	Gas and Sand Shield (25 Ft.)			
Size (OD)	Min CSG Size	Screen Open Area 12 Slot (in2)	Screen Open Area 15 Slot (in2)	Lbs.
2-3/8" x 3"	4-1/2"	98	119	180
2-7/8" x 3-1/2"	5-1/2"	118	143	250
2-7/8" x 4-1/2"	6-5/8"	118	143	305
3-1/2" x 4-1/2"	6-5/8"	137	167	320
3-1/2" x 5-1/2"	7"	137	167	375

- Reduces Gas locking.
- Increases pumping efficiency.
- Provides sand filtration.
- "V" shaped openings between wraps; provides self-cleaning action and greatly reduces flow friction
- Available with 12 slot or 15 slot screen.

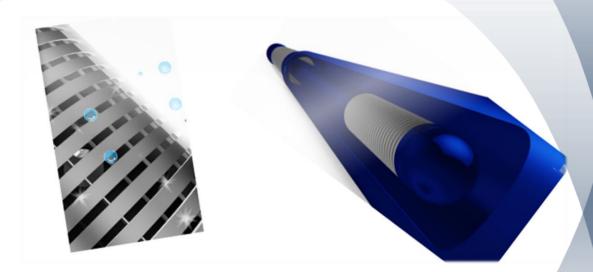


Super Gas and Sand Shield

Odessa Separator's Super Gas & Sand Shield maximizes filtration and gas separation.

Allows you to use up to two 24 ft. Tubing Screens with 25 ft. Gas Separator body providing both filtration and separation. It has 48 or 68 ft. internally mounted dip tube. The Super Gas and Sand Shield is designed for severe gas and sand applications.

The Tubing Screens are also available in different slots sizes (8, 10, 12, 15, 20, 50, and 75). Can remove bull plug and run mud joint below with bull plug



Super Gas and Sand Shield Data:



Body 25 ft.		
Size (OD)	Min CSG Size	Lbs.
2-3/8" x 3"	4-1/2"	180
2-7/8" x 3-1/2"	5-1/2"	250
2-7/8" x 4"	5-1/2"	279
2-7/8" x 4-1/2"	6-5/8"	305
3-1/2" x 4-1/2"	6-5/8"	320
3-1/2" x 5-1/2"	7"	375

- Sand filtration.
- Reduces gas locking.
- Increases pumping efficiency.
- "V" shaped openings between wraps; provides self-cleaning action and greatly reduces flow friction.
- Available in different slots sizes.



Dual Body Super Gas and Sand Shield

Odessa Separator's Dual Body Super Gas and Sand Shield for Maximum Gas Separation and Filtration.

Allows you to use up to two 24 ft. Tubing Screens with two 25 ft. Gas Separator bodies providing both filtration and separation. It has 110 ft. internally mounted dip tube. The Dual Body Super Gas and Sand Shield is designed for severe gas and sand applications.

The Tubing Screens are also available in different slots sizes (8, 10, 12, 15, 20, 50, and 75).



Note: After second body run the Mud joint with Bull Plug

Dual Body Gas and Sand Shield Data:

Body 25 ft. (EA)		
Size (OD)	Min CSG Size	Lbs.
2-3/8" x 3"	4-1/2"	180
2-7/8" x 3-1/2"	5-1/2"	250
2-7/8" x 4"	5-1/2"	279
2-7/8" x 4-1/2"	6-5/8"	305
3-1/2" x 4-1/2"	6-5/8"	320
3-1/2" x 5-1/2"	7"	375

- Reduces Gas locking.
- Increases pumping efficiency.
- Provides sand filtration.
- "V" shaped openings between wraps; provides self-cleaning action and greatly reduces flow friction
- Available in different slots sizes.



Flow Chart (US BBL/D)

Gas Separators

Slotted Gas Shield		
Size (OD)	Max. Separation (US BFPD)	
2-3/8" x 3"	146	
2-7/8" x 3-1/2"	305	
2-7/8" x 4"	398	
2-7/8" x 4-1/2"	556	
3-1/2" x 4-1/2"	556	
3-1/2" x 5-1/2"	927	

Gas Shield		
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2-7/8" x 4-1/2"	556	
3-1/2" x 4-1/2"	556	
3-1/2" x 5-1/2"	927	

*For gas and sand filtration

Super Gas and Sand Shield	
Size (OD)	Max. Separation (US BFPD)
2-3/8" x 3"	250
2-7/8" x 3-1/2"	400
2-7/8" x 4"	515
2-7/8" x 4-1/2"	650
3-1/2" x 4-1/2"	650
3-1/2" x 5-1/2"	1000

^{*}For severe gas and sand

Dual Body Super Gas and Sand Shield (EA Body)		
Size (OD)	Max. Separation (US BFPD)	
2-3/8" x 3"	250	
2-7/8" x 3-1/2"	400	
2-7/8" x 4"	515	
2-7/8" x 4-1/2"	650	
3-1/2" x 4-1/2"	650	
3-1/2" x 5-1/2"	1000	

^{*}For severe gas and sand



^{*}Only for gas

^{*}For gas and large particles



Why Use Downhole Chemical Treatment?

Surface chemical treatments,

The Surface chemical treatments attempt to apply chemicals from thousands of feet above the area where treatment is needed-the bottom of the well bore. Under ideal conditions, surface treatments are very effective; however,

Several factors can make Surface chemical treatments difficult: New drills Achieving flow through capillary string ESP intake design Flowing wells High fluid levels High gas volume Pumping below a packer

Odessa Separator's downhole treatment products,

The Odessa Separator Chem Screen tool is placed at the very bottom of the well.

- Provides a steady and continuous release over several months.
- Reduces potential pump damage and maintenance cost.
- Provides support for surface treatments insuring longer run times even when the well is under control and surface treatments are
- Perforations and intake equipment remain clear allowing for greater fluid flow.
- Chem Screen tool can be refurbished, refilled and run again.
- Available in a large selection of lengths.

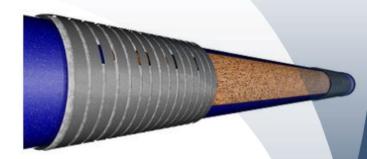


Chem Screen and Extended Chem Screen.

Odessa Separator's Chem Screen and Extended Chem Screen are downhole chemical conditioning systems.

Chem Screen and Extended Chem Screen release solid chemical in the bottom of well bore providing effective scale, paraffin and corrosion treatment, for rod pump, ESP, PCP, gas lift, plunger lift, jet pump, and flowing wells.





Chem Screen and Extended Chem Screen are solid based blend with 97% active chemical ingredients.

Four main types of treatments

- Standard Treatment, for scale, paraffin and corrosion.
- Paraffin inhibitor enriched, for severe paraffin.
- Scale inhibitor enriched for severe scale.
- Corrosion treatment for corrosive environments.

	9 Month treatment table		8 ft. tool	24 ft. tool
	Tool size	Number of tools	Rate (bbl/d)	Rate (bbl/d)
	23/8"	2 ^{3/8"} 2 ^{7/8"} 1	25	120
	27/8"		35	200
	23/8"	2 ^{7/8} " 2	50	240
			70	400
	2 ^{3/8"} 2 ^{7/8"} 3	75	360	
		105	800	
	23/8"	4	100	480
	2 ^{7/8} "		140	800

2 ^{7/8} " 2 ^{7/8} "	1	8 ft. initial quick release tool (20 days)

Extended 48 ft. tool provides double the chemical treatment of 24 ft.



- Reduces paraffin, scale and corrosion failures.
- Treats from the bottom up.
- Refillable tool design.
- Slow, self-release.
- Chemical treatment below the packer.





OSI Production Solutions

- 1. ESP configuration, Sand filtration, Gas Separation and Chemical Treatment using Super Gas and Sand Shield 68" Dip Tube with Corrosion Chem Screen.
- 2. Beam pump configuration, Sand filtration and Gas Separation using Dual Body Super Gas and Sand Shield 110" Dip Tube.
- 3. PCP configuration, Sand Filtration using Two Tubing Screen 15 slot and Bypass Valve





Pump Intake Scheme

	1.	Pump type ☐ ESP ☐ S. Rod ☐ PC						
		☐ Plunger left ☐ Gas left ☐ Jet pur☐ ☐ Hydraulic pump ☐ Flowing	oump					
	2.	Casing size $\Box 4^{1/2}$ $\Box 5^{1/2}$ $\Box 7'$						
	3.	Tubing size $\square 2^{3/8"} \square 2^{7/8"} \square 3$	1/2"					
	4.	Type of well Horizontal Packer Liner	Open Hole					
	5.	Pump Guard (length) 12"	3′ 🗆 6′ 🗆 8′ 🗆 10′					
	6.	Tubing screen (length)	0 8′ □ 24′					
	7.	Number of Tubing screen	2 3 4					
	8.	Gas separator ☐ Slotted GS ☐ Gas Shield ☐ Ga	s & Sand Shield Super GSS Dual Body SGSS.					
	9.	Bypass tool Yes. No.						
	10.). Chemical treatment.						
		Quick release.	Silver bullet.					
L			Scale inhibitors enrich.					
		☐ Corrosion inhibitor enrich. ☐	Chemical marker.					
	11.	. Chemical delivery tool						
		□ PG □ 8 ft □	24 ft					
		T.S 8 ft low volume	24 ft standard					
		☐ 48 ft _{Extended}						
	12.	. Note						

Well Data Sheet



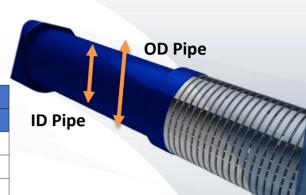
CUSTOMER INFORMATIO	N												
Company:					Contact:					Date:			
Phone #:				. Fax #:				E-Mail:					
Lease & Well #:					Country:			. Nearest 0	City / Town				
WELL INFORMATION					153								_
Well Type:													
	Vertical		Directional		Horizontal		. Deviation:		Build And	le / Degree:			
(Include Well bore schematic)							survey-measi						
Casing Data:				Weight:		Depth:		Perfs from	:	•••••	to:		
Please furnish all perf	oration interv	als:											•••••
Casing Liner Data:		Size:		Weight:		Depth:		. Perfs from	:	to:			
	Total Depth:		PBTD		Open I	Hole Data:		. Depth:		Size			
									size	T	ype (cup, btm	mech, top mech)	
Tubing Data:	Size:		Weight:		Length:		. Seat I	Nipple:					
Tubing Anchored/ PKR							TAC:		Packer:		Depth:		
Please list type											•		
			DOL / D		0!	D		DOL / D	01 (1		··		
Flow Line Pressure:				600 06 10		Pressure:				ocation or C	entrai Btr.y.)		
Chemical Treatment:		Continuous		Batch		Frequency		Other ((specify)				\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
Chemical Company:			Pump Co	ompany:									А
	Mud Anchor	Size:		Length:	•••••		Gas Anchor	Size:	***************************************	Length:		perf. Or slot	
Desander or screen		Gas ser	oarator:				perf. Sub	Size:		Length:			
Surface Stroke:			Pumping	Speed:		Pump Si	ze & Desc.						
FLUID INFORMATION													7
Specific Gravity:		Oil (API):		Water:		Gas:		GOR:			GLR:		
Total Fluid Viscosity:				. Centi	poises:		. Botton	n Hole Temp	erature :		d	leg F or deg ℃	
Water Salinity (ppm):						Fluid pH:			Chlorid	es (ppm):		X	
Sand:		Light		Moderate		Heavy		Type (form	antion / frac)			
Scale:		Light		Moderate		Heavy		SIZE					Л
				Moderate		-							А
Paraffin:		Light				Heavy		H₂S %:			CO2 %:		
Iron Sulfides:		Light		Moderate		Heavy		Bacteria?		Asph	altine?		
Other Fluid Information:													
PRODUCTION RATE				_									
Fluid Level Data:		Static:	•••••			Dynamic		POC: ?		Est. Hrs Or	1		
Well's current type of Lift syste	<u>m:</u>			New Well		Gas		Hydraulic		PCP			
				Beam		ESP		Jet		Flowing			
24 Hour Test:	Oil:		bbl/day or n	n³/day	Water:		bbl/day or n	n³/day	Gas:			bbl/day or m³/day	
EST. POTENTIAL	Oil:		.bbl/day or n	n³/day	Water:		bbl/day or n	n³/day	Gas:			bbl/day or m³/day	
Failure / Intervention History (Typ	e = Rod, Pump	, Tubing, Othe	er-Specify) Ca	ause of Failu	re=(Corrosi	on, Abrasion,	Wear, Other -	Specify)					
Date	Туре	Depth				Not	es / Comments	/ Pump Shop	Report / Obs	ervations			
													_
													_
Any additional Comments / Notes /	Requests												



Technical Specification

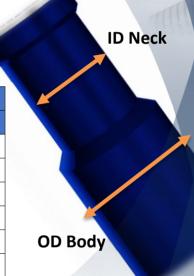
Filtration / Sand Control

		Pipe	(in)	Screen (in)	Collar (in)		
		Sizes	OD	ID	OD	OD	ID
		2-3/8"	2.375	1.941	2.87	3.063	2.375
		2-7/8"	2.875	2.441	3.37	3.668	2.875
		3-1/2"	3.5	3.066	3.94	4.5	3.5



Gas separation

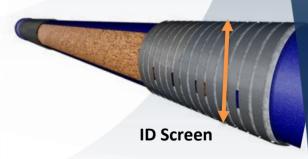
,		Necl	k (in)	Body	(in)	Collar (in)		
ı	Sizes	OD	ID	OD	ID	OD	ID	
	2-3/8" x 3"	2.375	1.941	3	2.5	3.063	2.375	
	2-7/8" x 3-1/2"	2.875	2.441	3.5	3	3.668	2.875	
١	2-7/8" x 4"	2.875	2.441	4	3.5	3.668	2.875	
	2-7/8" x 4-1/2"	2.875	2.441	4.5	4	3.668	2.875	
	3-1/2" x 4-1/2"	3.5	3.066	4.5	4	4.5	3.5	
	3-1/2" x 5-1/2"	3.5	3.066	5	4.5	4.5	3.5	



Chemical Treatment

	Pipe (in)		Screen (in)	Colla	r (in)
Sizes	OD	ID	OD	OD	ID
2-3/8"	2.375	1.941	2.87	3.063	2.375
2-7/8"	2.875	2.441	3.37	3.668	2.875

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OSI Glossary

Filtration / Sand Control

TS: Tubing Screen SP: Super Perf PG: Pump Guard BV: Bypass Valve

Gas separation

SGS: Slotted Gas Shield

GS: Gas Shield

GSS: Gas & Sand Shield

SGSS: Super Gas & Sand Shield

DBSGSS: Dual body Super Gas & Sand Shield

Chemical Treatment

CS: Chemical Screen

EXT.CS: Extended Chemical Screen

Components

BP: Bull Plug **MJ:** Mud Joint

TC: Tubing Connection **NFN:** No-Flow Nipple

FN: Flow Nipple **SN:** Seating Nipple **DT:** Dip Tube

CR: Collar

COC: Change Over Collar

