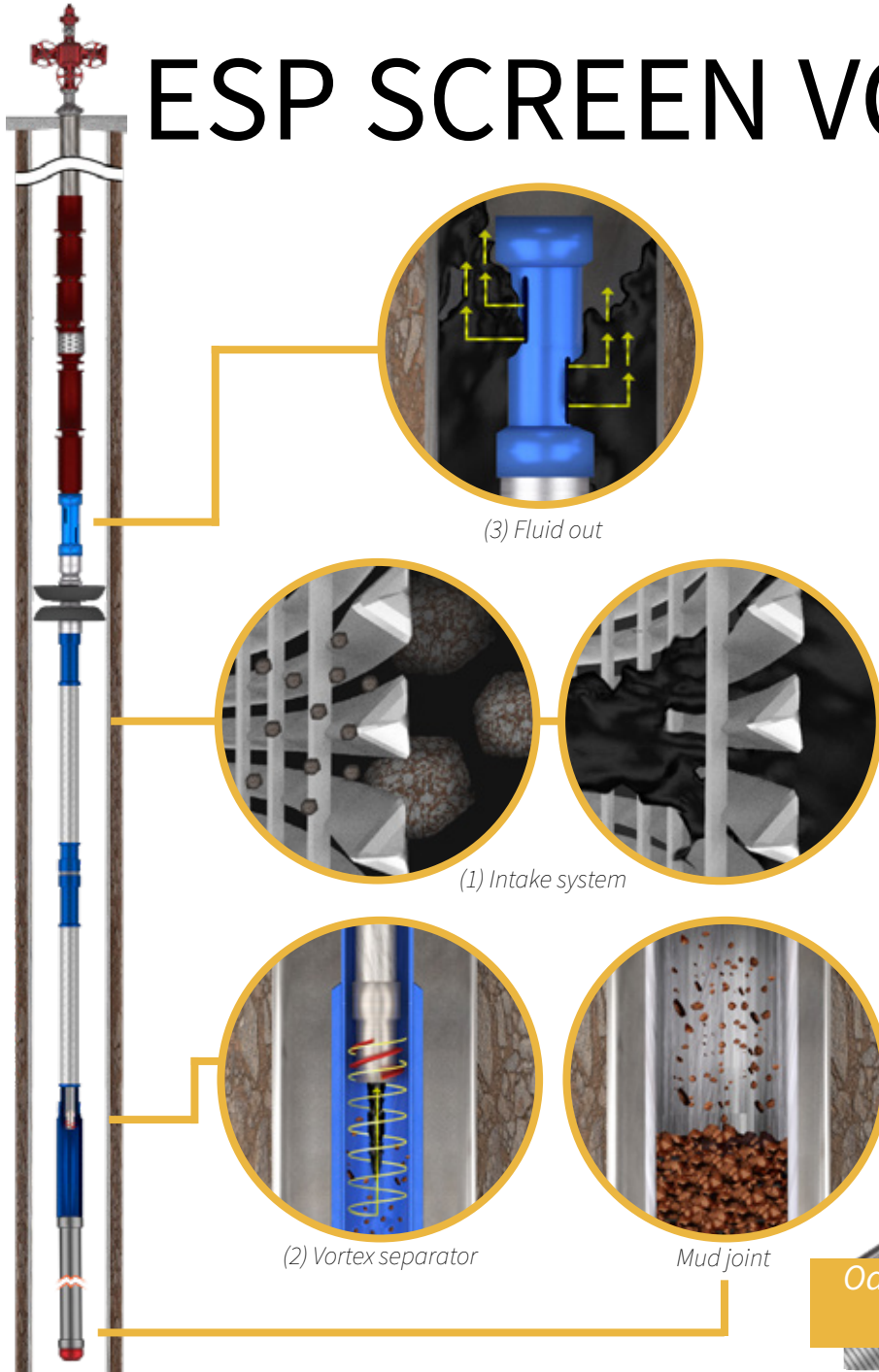


# ESP SCREEN VORTEX DESANDER™



ESP Screen Vortex Desander™ Patent No.: US 8,881,803 B1

Screen Vortex Desander is designed specifically for wells with a high lifting cost associated with sand problems. The use of centrifugal force to separate sand particles makes it very successful in downhole applications. To improve separation efficiency, the Vortex Sand Shield technology is combined with the Tubing Screen or the Super Perf to obtain a 2-stage sand separation system that has been successfully applied in multiple wells worldwide.

The Screen Vortex Desander can be installed below the ESP sensor, a mechanical packer, or a shroud, keeping its principles of operation and separation efficiency.

### BENEFITS

- Two filtration stages.
- Maximum efficiency of sand control: Large and fine sand particles.
- Stable parameters: Vibrations, current and frequency.
- Easy installation design, less operating time.

*Odessa Separator's ESP Screen Vortex Desander maximizes artificial lift run life by separating harmful abrasives*



“Your source for fluid conditioning systems”

The ESP Screen Vortex Desander is made up of 4 components, they are: The sleeve, body, dip tube and vortex helix.

- 1. The Sleeve:** Is the outside portion of the tool, it is slotted to eliminate the possibility of dropping tubing in the event of severe sand cutting.
- 2. Body:** The inner portion of the tool, just inside the sleeve, that houses the components and directs solids downward into the tail pipe (mud joint); it is designed to allow long tool life by resisting sand cutting. The length of this section is 22 in.
- 3. Dip Tube:** The steel pipe connected to the helix that allows cleaned fluid to enter the production line and be produced up the tubing, while also assisting in the separation of gas.
- 4. Vortex Helix:** The inside portion of the tool, with spiral shaped fins, that directs fluid in a circular motion. This is called a vortex, and it separates solids by using centrifugal force to sling solids to the outside of the body.



## VORTEX FLOW CHART

FLOW CHART		HELIX SIZES		
ESP		EUE TUBING SIZE		
MIN	MAX	2-3/8"	2-7/8"	3-1/2"
96	192	HE1.1	HE2.1	HE3.1
132	252	HE1.2	HE2.2	HE3.2
216	440	HE1.3	HE2.3	HE3.3
330	610	HE1.4	HE2.4	HE3.4
410	850	HE1.5	HE2.5	HE3.5
780	1480	HE1.6	HE2.6	HE3.6
1150	1910	HE1.7	HE2.7	HE3.7
1480	2800	HE1.8	HE2.8	HE3.8
2100	3900	HE1.9	HE2.9	HE3.9

Available

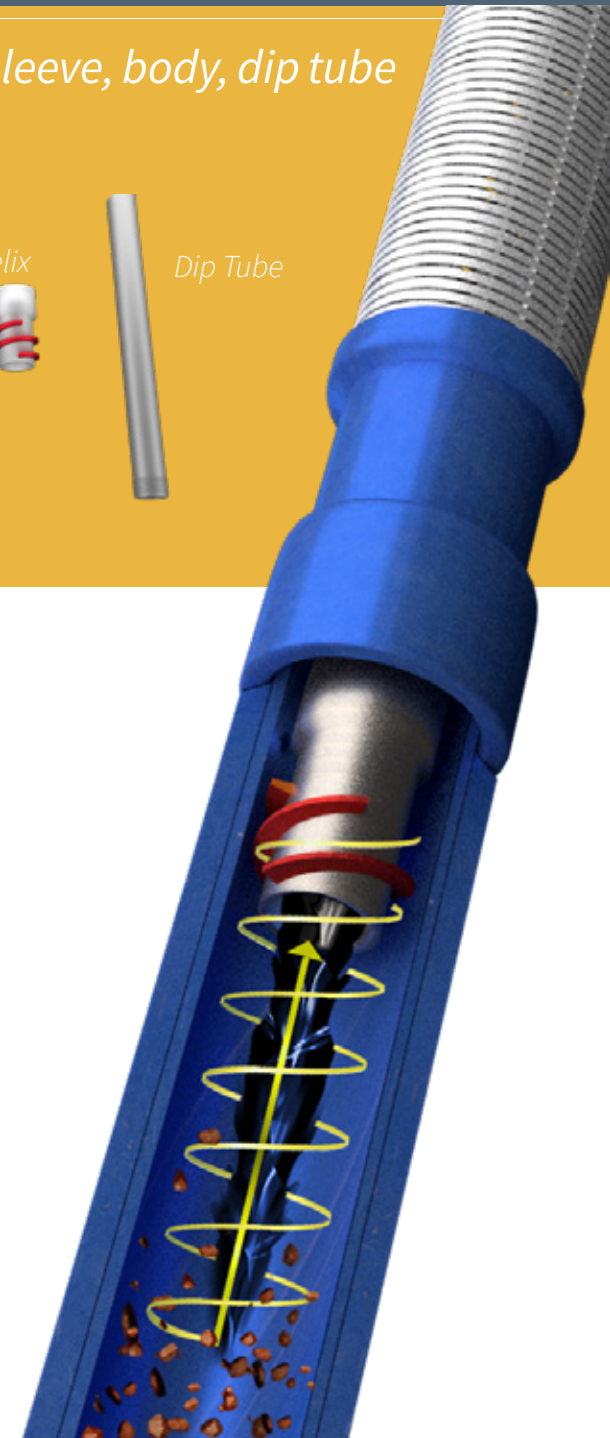
-2-3/8"

-2-7/8"

-3-1/2"

## GV CUP PACKER RUBBER MATERIAL

RUBBER TYPE	TEMPERATURE RANGE
NITRILE	70° - 300° F
HSN (HNBR)	70° - 325° F
VITON	100° - 350° F

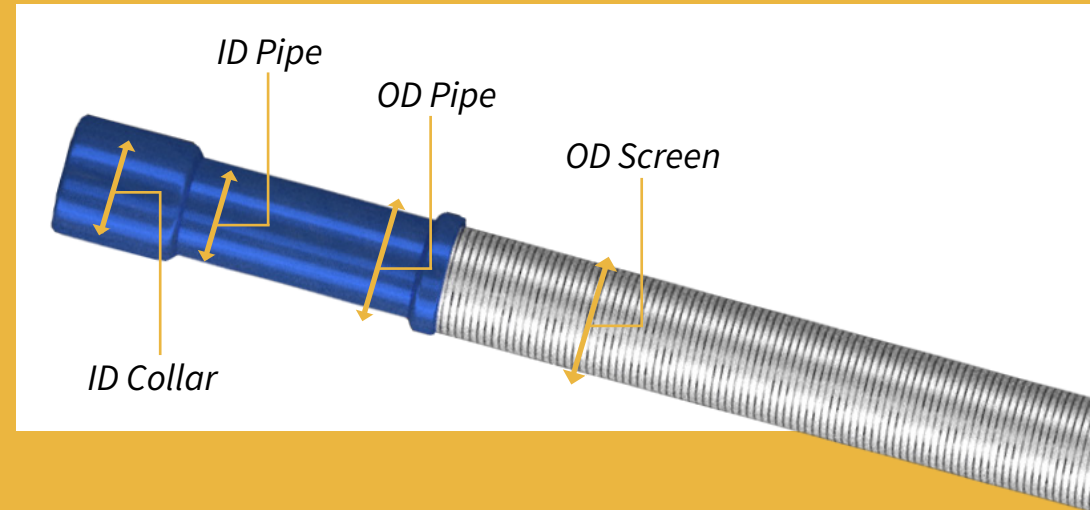


**The Tubing Screen is manufactured in three nominal diameters:**

2-3/8", 2-7/8", 3-1/2" and 2 lengths: 8' and 23.5'. Each one of these diameters and lengths could be designed with different slot sizes. The size and length of the system for sand management downhole is designed based on the production and mechanical conditions of each well.

**23.5ft**

Size	Slot	Open Area
2 3/8	8	176.0
2 7/8		207.3
3 1/2		242.4
2 3/8	10	216.2
2 7/8		253.2
3 1/2		253.9
2 3/8	12	254.4
2 7/8		298.7
3 1/2		349.3
2 3/8	15	308.9
2 7/8		362.8
3 1/2		424.2
2 3/8	20	393.2
2 7/8		461.8
3 1/2		539.9
2 3/8	50	772.4
2 7/8		907.0
3 1/2		1060.4
2 3/8	75	983.1
2 7/8		1154.4
3 1/2		1349.6



**Technical Specifications**

Size	Pipe (in)		Screen (in)	Collar (in)	
	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	3.27	3.668	2.875
3-1/2"	3.5	3.066	3.94	4.5	3.5

**Thread Connection**

Size	Top Connection	Bottom Connection
2-3/8"	2-3/8" EUE box	2-3/8" EUE box
2-7/8"	2-7/8" EUE box	2-7/8" EUE box
3-1/2"	3-1/2" EUE box	3-1/2" EUE box