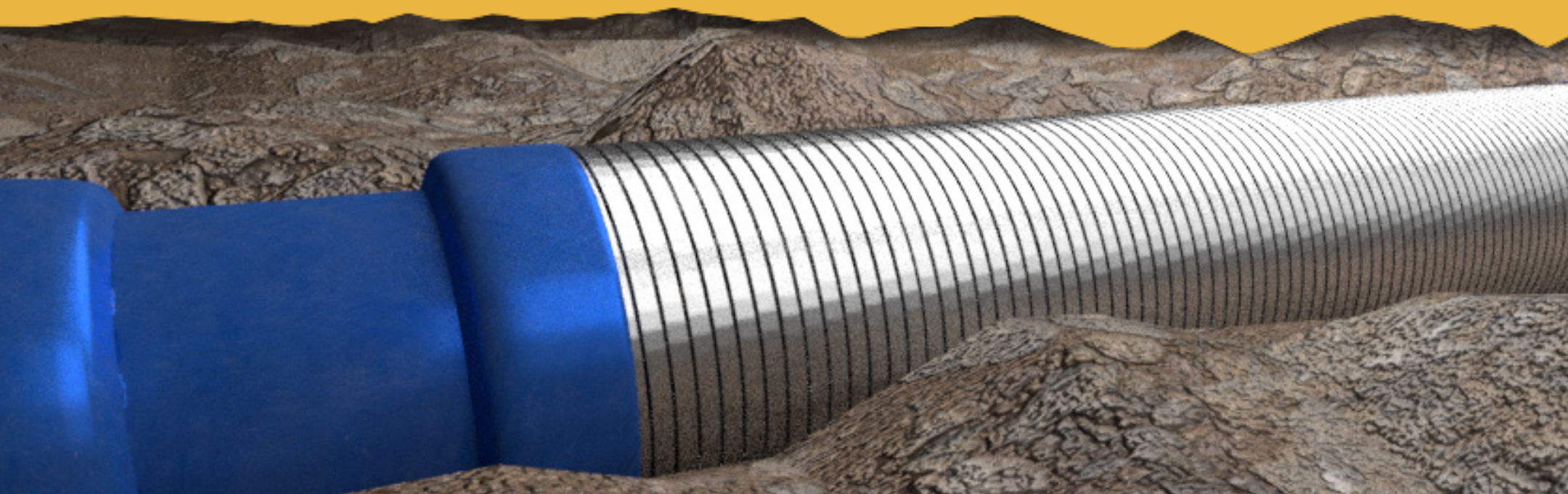
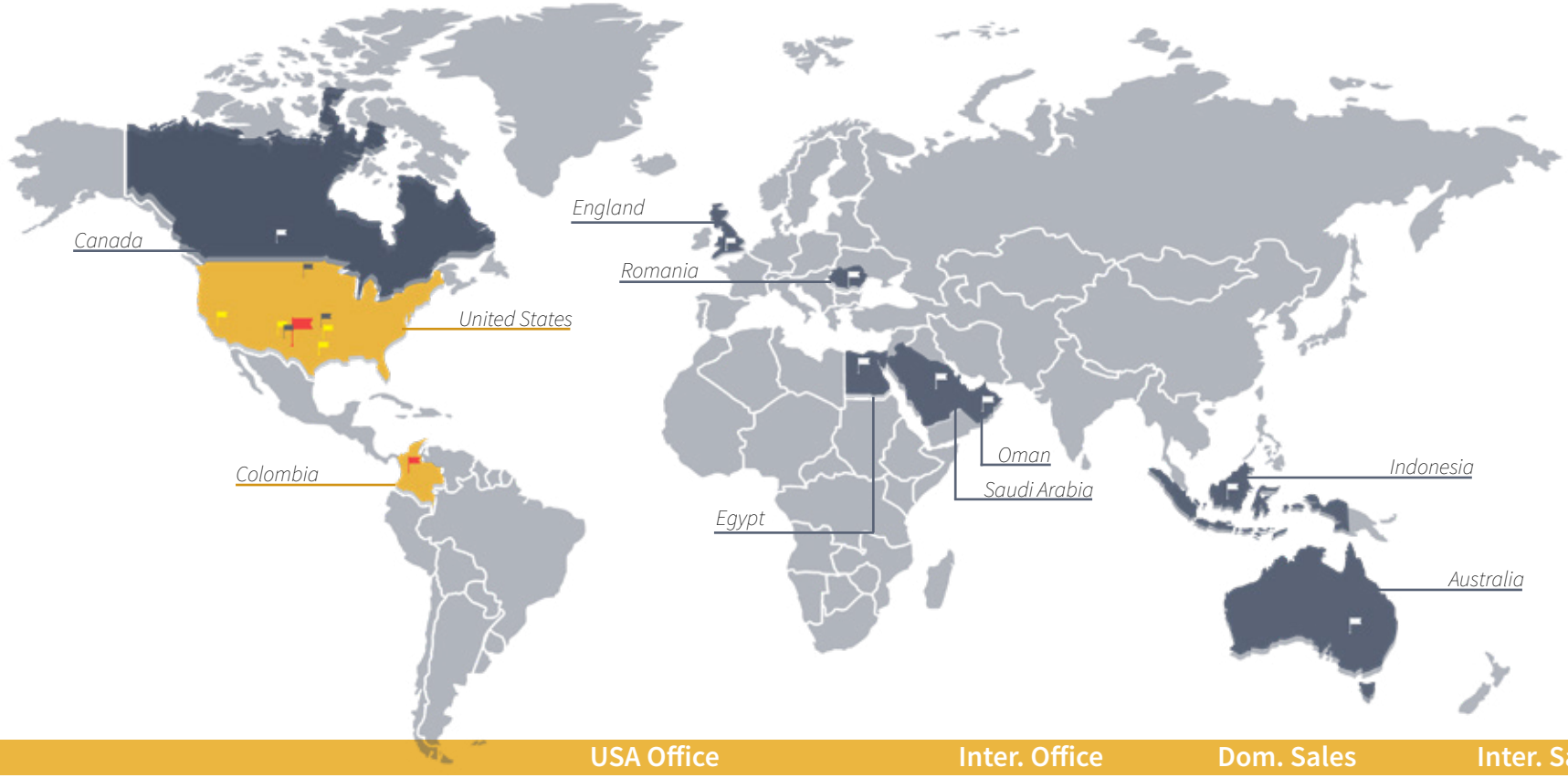
Fluid Conditioning Systems

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	Inter. Office	Dom. Sales	Inter. Sales
Odessa (Principal Office)	Colombia	California	Canada
Hobbs		New Mexico	Indonesia
North Dakota		San Antonio	Australia
Oklahoma			Egypt
			Oman
			England
			Saudi Arabia
			Romania

Office: (432)-580-7111 | www.odessaseparator.com

Contents

OSI Products

Filtration / Sand Control

Tubing Screen

Top Bypass Valve

Super Perf

Pump Guard Screen

Vortex Sand Shield

Gas Separation

Gas Separator Body

Gas Shield

Slotted Gas Shield

"Your source for fluid conditioning systems"

Chemical Tools

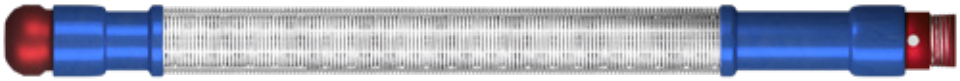
Top

Center

Bottom

Slow Release

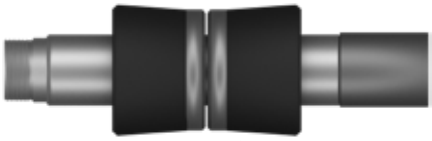
Chem Screen



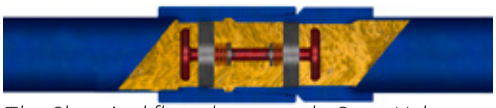
Quick Release

Retrievable Chem Tool - SRP / Gas Lift

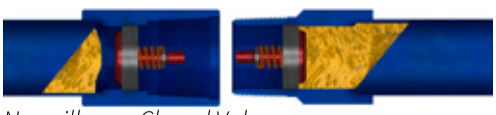
Components



GV Cup Packer



The Chemical flow downward - Open Valve



No spillage - Closed Valve

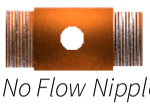
Shut Off Valve

Gas Vent

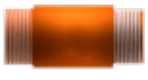
Bull Plug

Seating Nipple

Tubing Connection



No Flow Nipple



Flow Nipple

Collar

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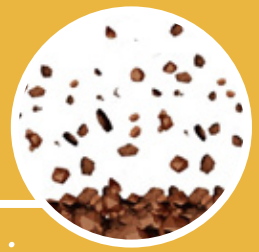
"Your source for fluid conditioning systems"

Oilfield Challenges *SAND*

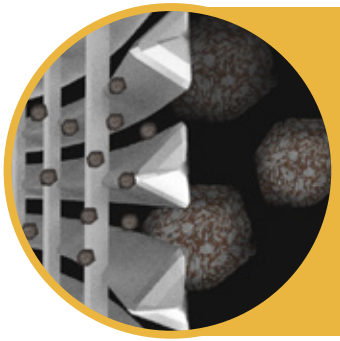


Sand in the well damages downhole hardware and restricts efficient fluid pumping operations.

FAMILIARITY WITH TYPES OF SAND

- Formation sand is generally smaller and irregular in size.
- Frac sand is comparably larger, very uniform in size, and more abrasive.

Slot Size	*Description*	*Plugging Potential*
0.006 - 0.008	Fine Formation Sand	High
0.012	Med Formation Sand and 20-40 Frac Sand	Medium
0.015	Large Formation Sand and 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



Slot size is the opening between the V-wires.
This space indicates filtration size and type.

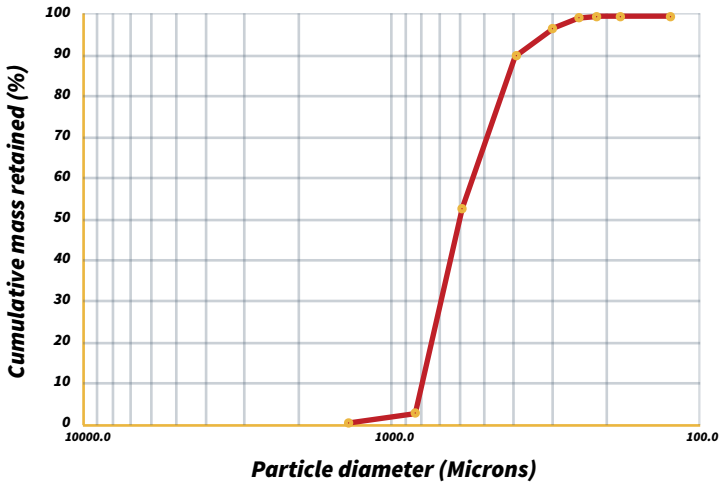
It is not common for tubing screens to plug when the OSI APPROACH is followed. OSI conducts solids and sieves wells analysis to properly size slots, tool lengths, & stages of filtration for maximum pump operations.

Granulometric Distribution

The particle size distribution of a sample of sand, is the graphical representation of the results of an analysis to count or assess the particle size distribution (gradation) of a granular material in the laboratory.

In the case of sieve analysis, the particles are retained for each mesh according to the size of the opening. This procedure is performed to identify the percentage by weight which has been retained by each sieve, which makes relative to a certain particle size.

Size	Slot	US. Mesh Sieves	Retained Weight (gr)	Retained Weight (%)	Cumulative % (gr)
50	1,410	14	0.2	0.2	0.2
30	841	20	0.4	0.4	0.4
20	595	30	2	2	2.61
15	400	40	53.3	53.41	56.01
12	297	50	21.6	21.64	77.66
10	250	60	12.8	12.83	90.48
8	210	70	6.4	6.41	96.89
7	177	80	2.4	2.4	99.3
Pan	Pan	Pan	0.7	0.7	100
		Total Weigth =	99.8	100	100



The cumulative weight percentage is illustrated in a semi-logarithmic graph where the abscissa corresponds to grain size values in logarithmic scale and full scale with the ordered values accumulated weight percentage of sand sample.

OSI understands that sand in a well will hinder efficient pumping operations.

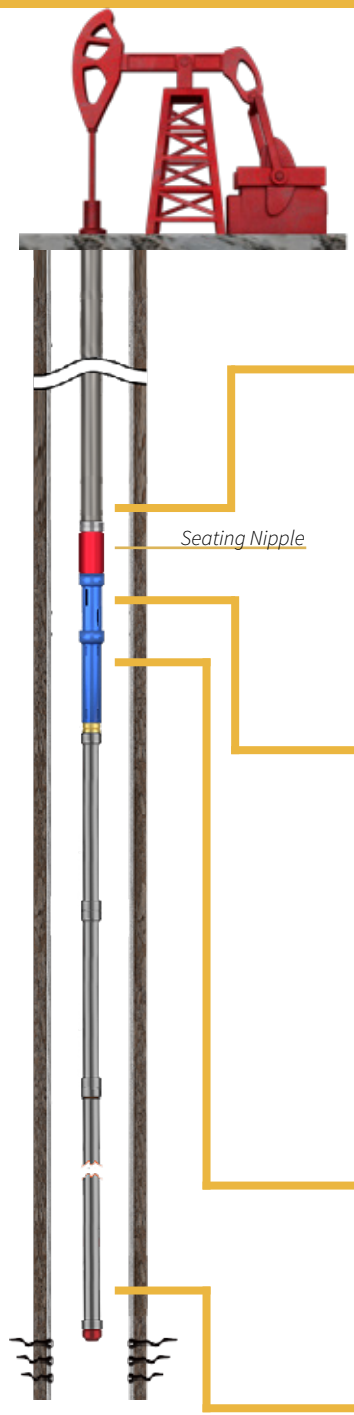
OSI APPROACH

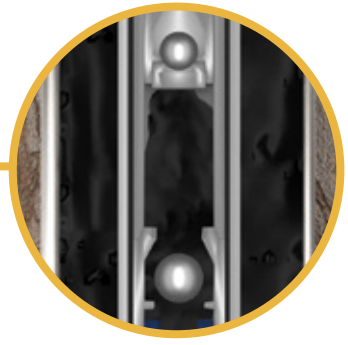
Through the application of specialty tools and the combined capabilities of OSI and operators' personnel, well specific design are created to optimize downhole conditions.

Hardware at risk

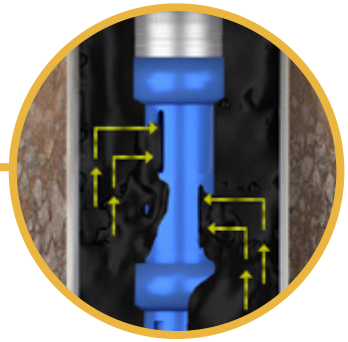
- Rods
- Tubing/Barrels
- Plungers/Pistons
- ESP Motors/Stage
- PCP Elastomer/Rotor

VORTEX DESANDER ™

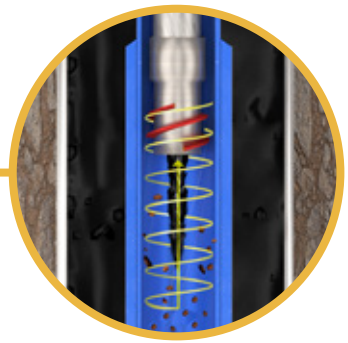




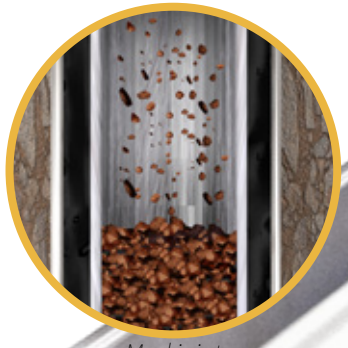
(3) Pump operation



(1) Fluid in



(2) Vortex separator



Mud joint

This improved version of the Vortex Desander™ was designed to withstand the high speed of the particles and avoid cuts in the tool and the failure of the sand separation system.

The intake consists of a specifically engineered slotted design. These slots are cut using a plasma cutter which creates smoother cut surfaces than other cutting methods. Smooth surfaces are less likely to be affected by corrosion.

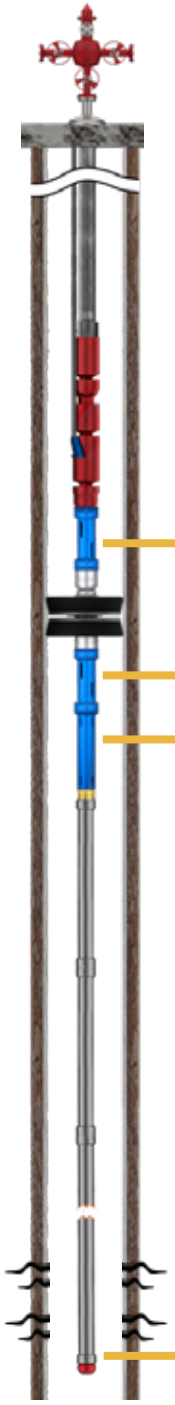
The helix creates the vortex effects using centrifugal force, which separates the sand particles and deposit (s) them into the tail pipe[s] (mud joint[s]).

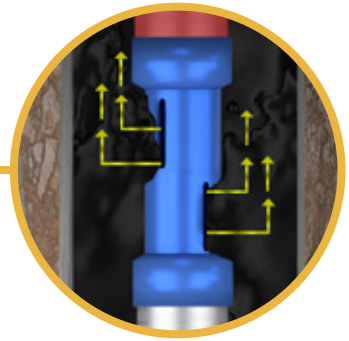
BENEFITS

- *Reduces the downtime due to sand issues.*
- *Fewer interventions and less investment in CAPEX.*
- *Avoid the premature failures of the pump components caused by the sand.*

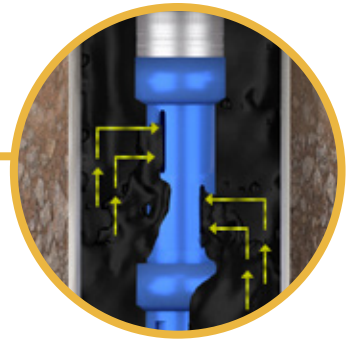
Vortex Desander™ consists of an intake and an embodied helix (vortex creator)

ESP VORTEX DESANDER ™

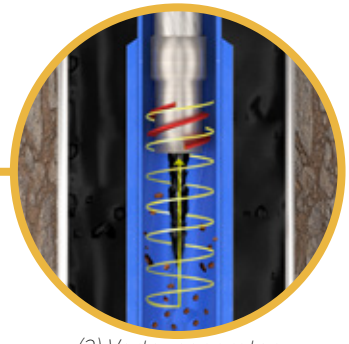




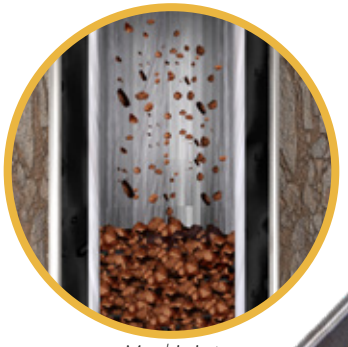
(3)Fluid out



(1) Fluid in



(2) Vortex separator



Mud joint

The ESP Vortex Desander™ is a sand control system installed under the sensor that uses the radial force created by the helix to separate the sand particles

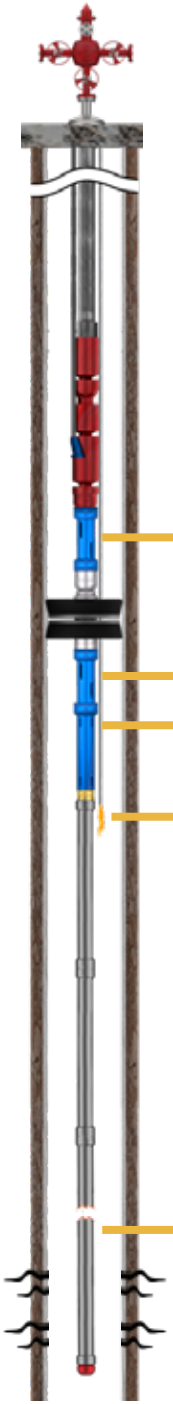
It is formed by a slotted intake, a vortex separator with double wall to avoid sand cutting, a double cup packer to guarantee the isolation of the intake and an outlet section that communicates the fluid with the pump.

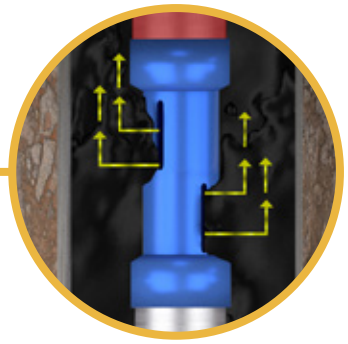
BENEFITS

- *Reduces the downtime due to sand issues.*
- *Fewer interventions and less investment in CAPEX.*
- *Stable pump parameters: Vibration, frequency, voltage and motor current.*
- *Avoid the premature failures of the pump components caused by the sand.*
- *Avoid problems such as sand cutting.*

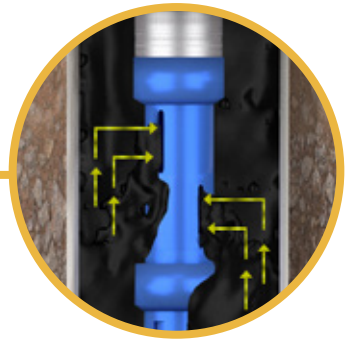
Our GV Cup Packer is a double cup design that guarantees the best seal.
Our packer cups are molded from a durable Oil, gas and abrasion- resistant elastomer compound that withstands wear and tear, even under pressure.

ESP VORTEX DESANDER ™
With Capillar String

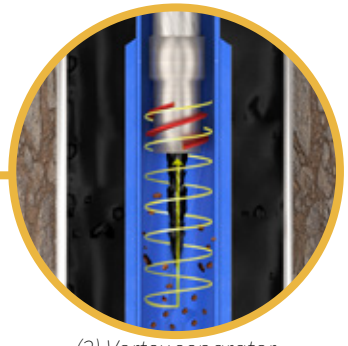




(3)Fluid out



(1) Fluid in



(2) Vortex separator

Surface injection

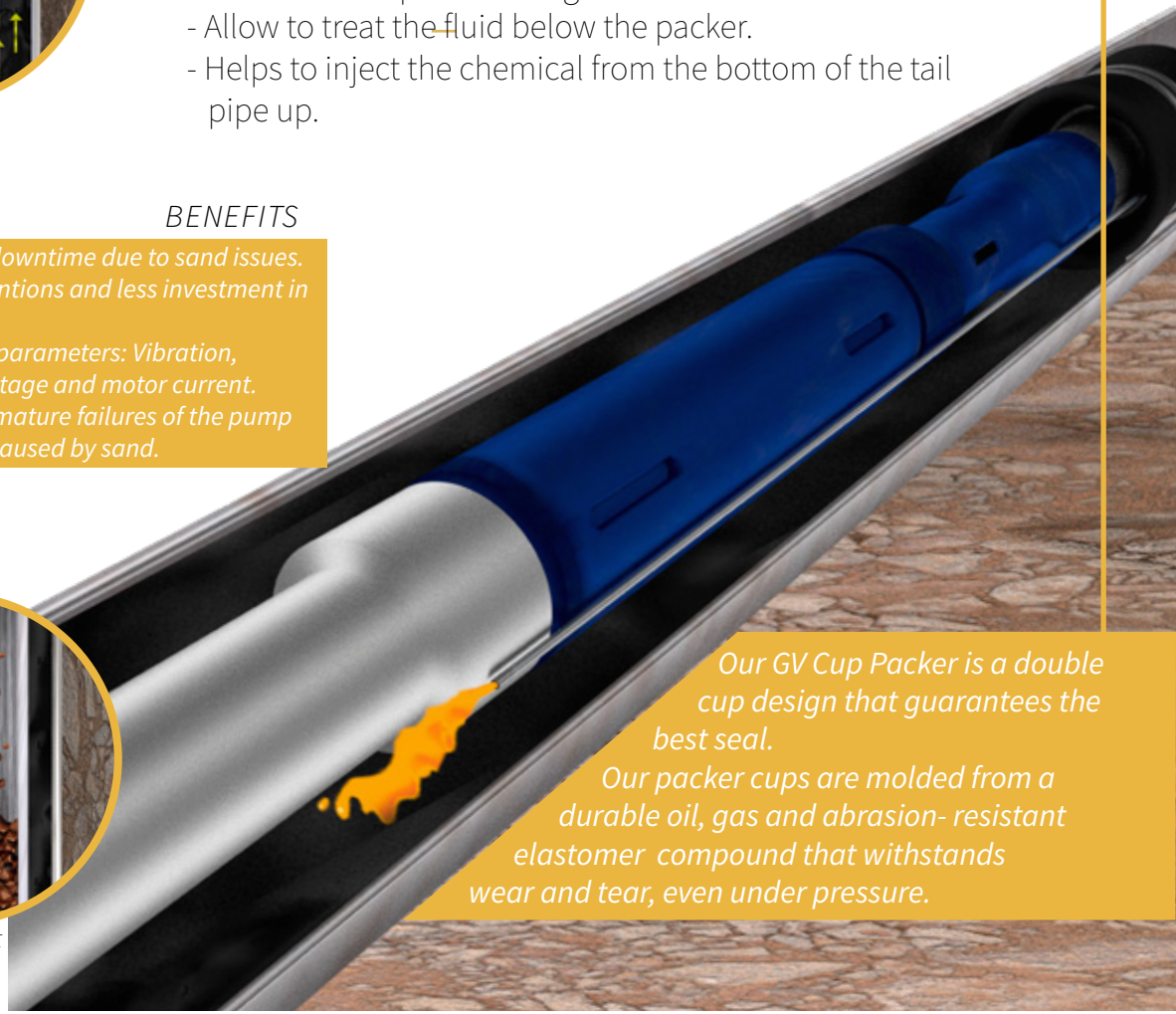
Mud joint

Features

- Separates the sand particles before they reach the ESP system.
- New Vortex Separator design.
- Allow to treat the fluid below the packer.
- Helps to inject the chemical from the bottom of the tail pipe up.

BENEFITS

- *Reduces the downtime due to sand issues.*
- *Fewer interventions and less investment in CAPEX.*
- *Stable pump parameters: Vibration, frequency, voltage and motor current.*
- *Avoid the premature failures of the pump components caused by sand.*



Our GV Cup Packer is a double cup design that guarantees the best seal.
Our packer cups are molded from a durable oil, gas and abrasion- resistant elastomer compound that withstands wear and tear, even under pressure.

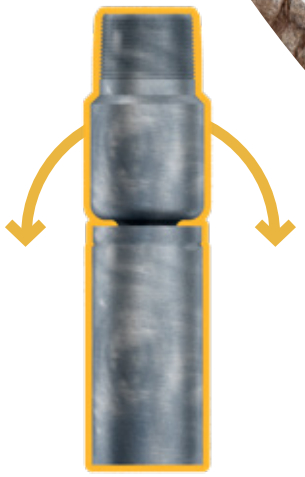
ESP VORTEX DESANDER ™
With Swivel

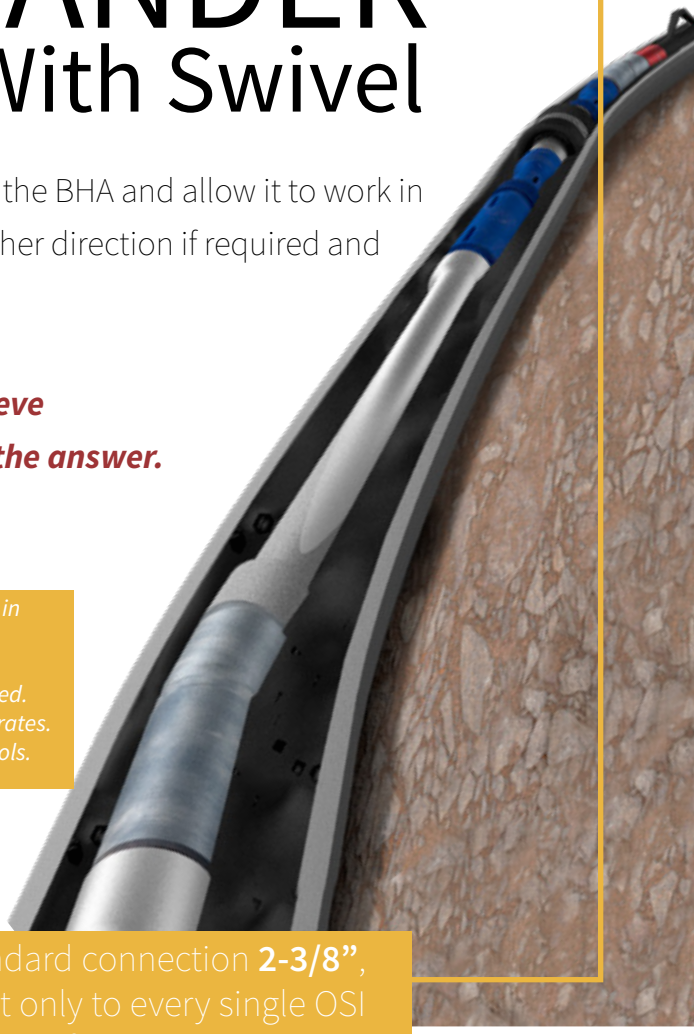
THE SWIVEL TOOL™ is designed to offer flexibility to the BHA and allow it to work in severe DLS; Allowing the tubing to freely rotate in either direction if required and to extend the production string in severe DLS.

When the inclination means an obstacle to achieve the production expected, THE SWIVEL TOOL™ is the answer.

BENEFITS

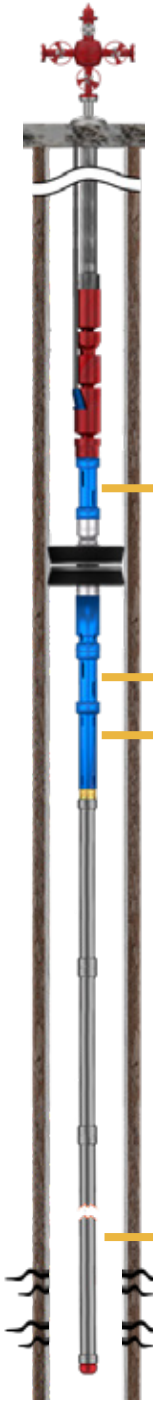
- *Designed to offer flexibility to the BHA and allow it to work in severe DLS.*
- *Allows to extend the production string in severe DLS.*
- *Allow the tubing to freely rotate in either direction if required.*
- *Specially designed for unconventional wells and low-flow rates.*
- *Compatible not only with OSI tools else with any type of tools.*

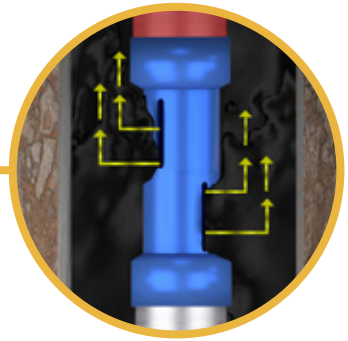




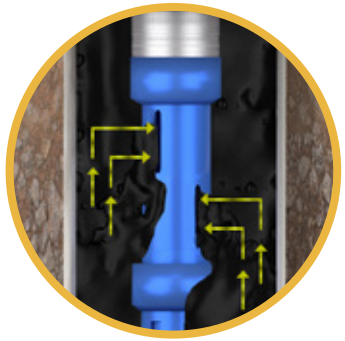
THE SWIVEL TOOL comes in standard connection **2-3/8"**, **2-7/8"** and **3-1/2"** compatible not only to every single OSI tool but with any type of tool.

ESP VORTEX DESANDER ™
Bypass Valve

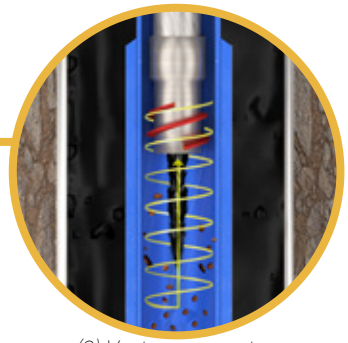




(3)Fluid out



(1) Fluid in



(2) Vortex separator

Mud joint

The Bypass Valve™ is incorporated in the ESP Vortex Desander™ to extend the run life of the pump by allowing the fluid to flow upward in case of plugging issues or obstructions in the Vortex Desander.

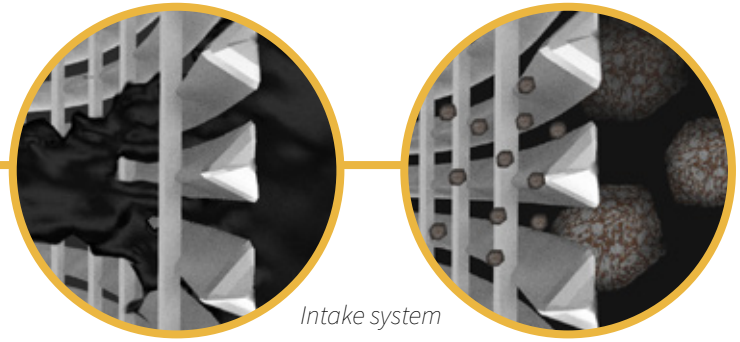
This improved version of the ESP Vortex Desander™ was designed to withstand the high speed of the particles and avoid cuts in the tool and the failure of the sand separation system.

BENEFITS

- *Reduces the downtime due to sand issues.*
- *Fewer interventions and less investment in CAPEX.*
- *Stable pump parameters: Vibration, frequency, voltage and motor current.*
- *Avoid the premature failures of the pump components caused by the sand.*
- *Avoid problems such as sand cutting.*

Bypass Valve (Open)

TUBING SCREEN™



Intake system

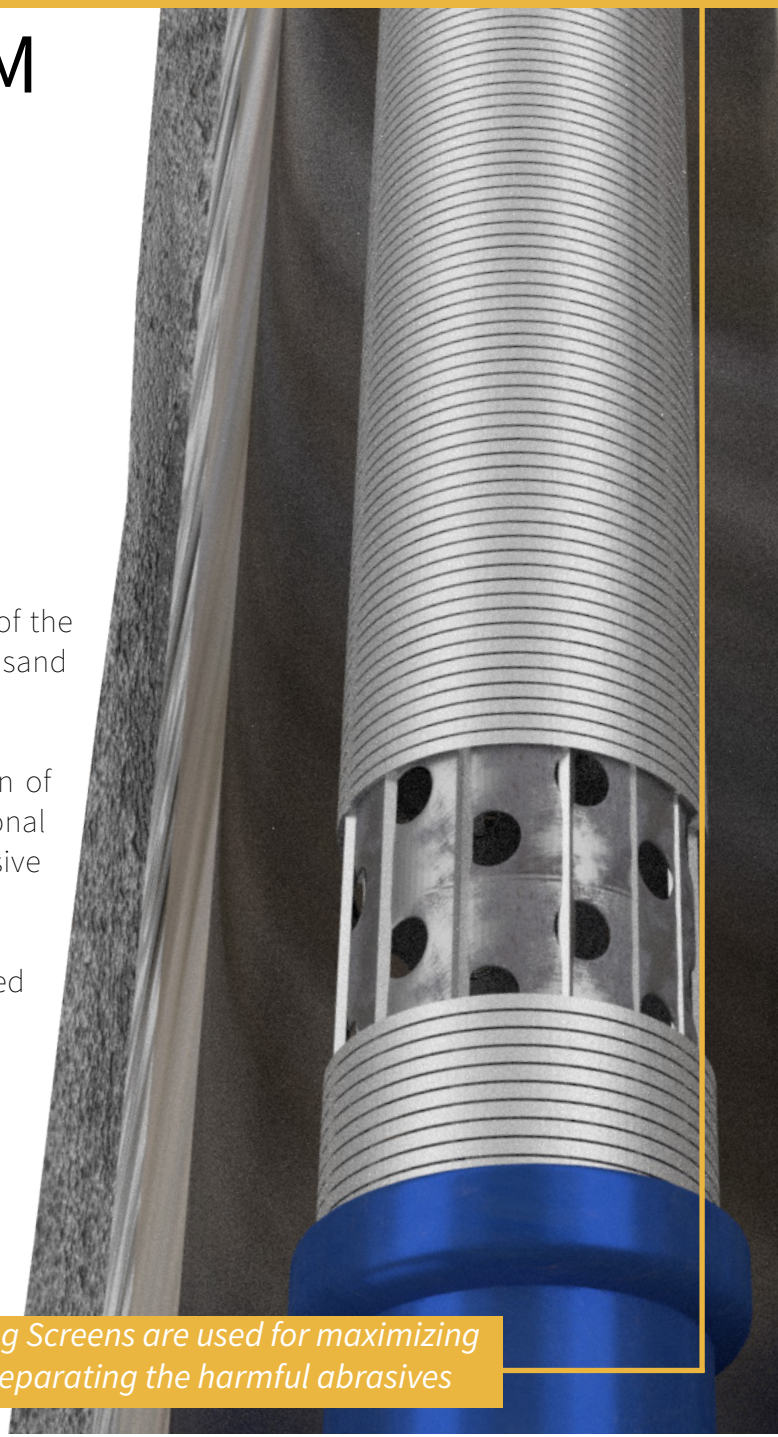
The Tubing Screen™ is a multifunctional system designed to extend the run life of the artificial lift systems through the management and homogenization of the sand production in downhole.

This innovative system uses a V-shaped mesh design that allows the separation of abrasive solids while maximizing the open area to flow fluid. This operational advantage makes the Tubing Screen™ one of the best options against the abrasive effects of sand.

The size and length of the system sand management in downhole is designed based on the production and mechanical conditions of each well.

BENEFITS

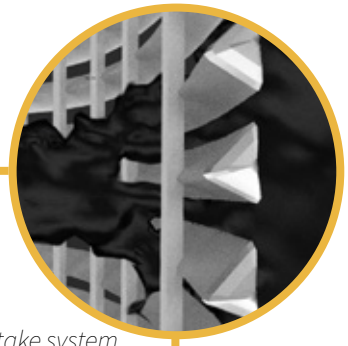
- *Homogenizes sand slugs extending the run life*
- *Reduction in the number of interventions*
- *The decrease in non-productive time*
- *Reduces sand failure.*
- *Large intake area, reducing pressure drop.*
- *"V" shaped design provides a small contact area, reduces flow friction.*
- *A wide range of filtration slot sizes.*
- *Corrosion resistant screen.*



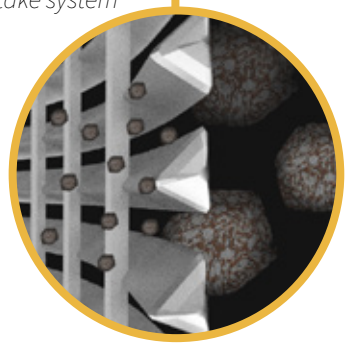
Odessa Separator's Tubing Screens are used for maximizing artificial lift run life by separating the harmful abrasives

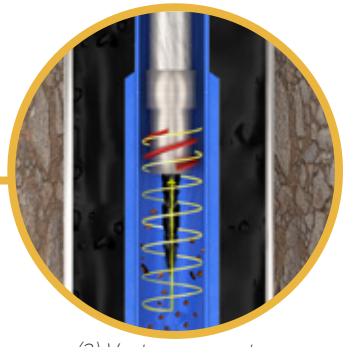
SCREEN VORTEX DESANDER ™

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

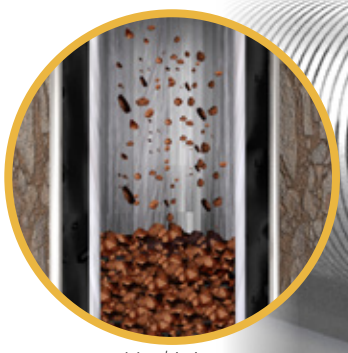


(1) Intake system





(2) Vortex separator



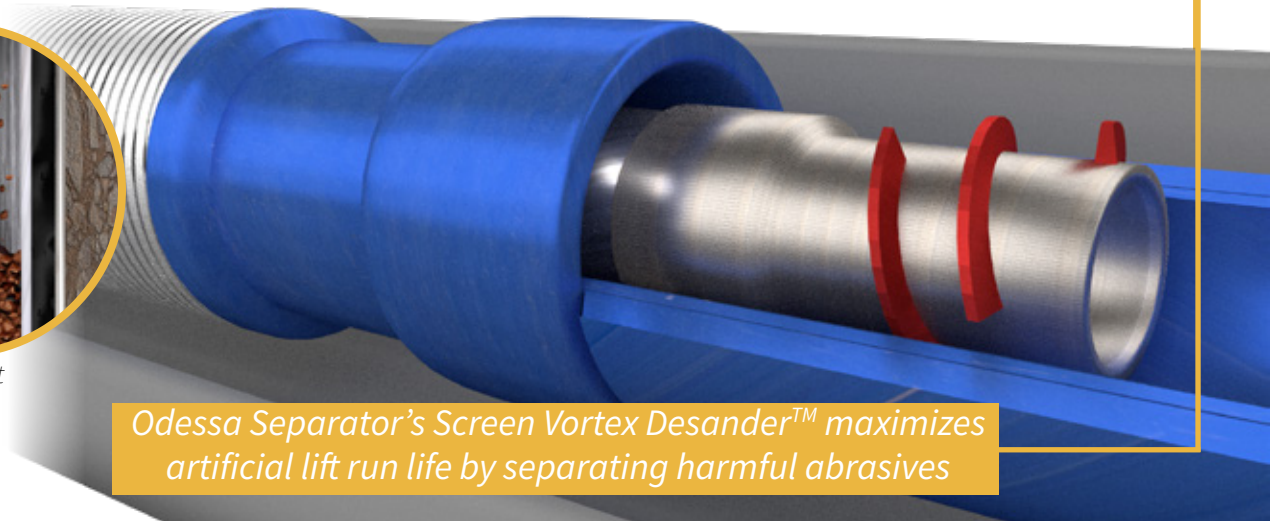
Mud joint

Screen Vortex Desander™ is designed especially for wells with high lifting costs associated with sand problems. The use of centrifugal force to separate sand particles makes their success in applications absolute. To improve separation efficiency, the Screen Vortex Desander™ 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 versatility of this system allows the combination of any OSI combined with OSI tools for the sand control and gas separation and create a complete and efficient optimization system that improves the performance of the lifting systems.

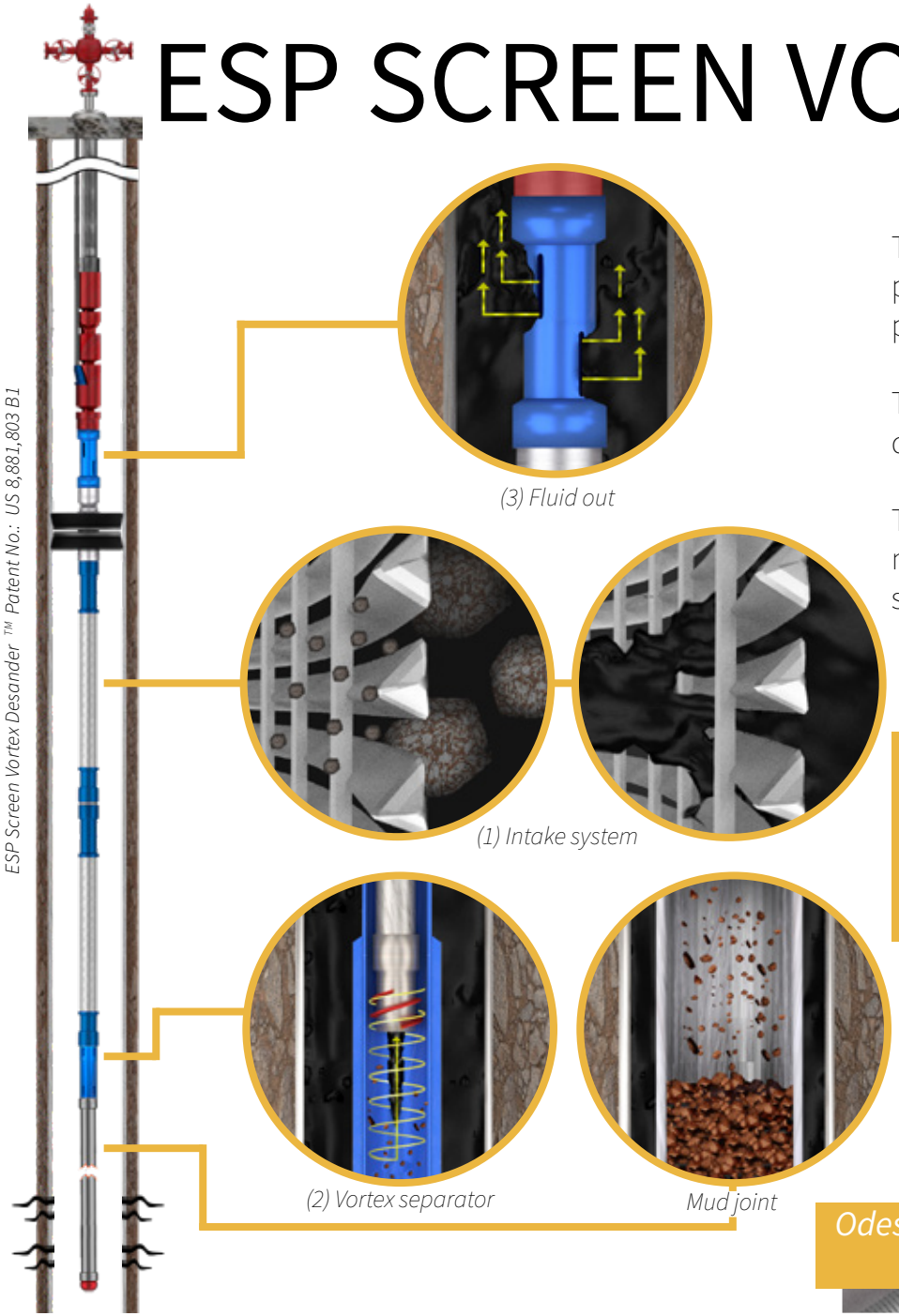
BENEFITS

- *Total elimination of sand problems.*
- *Two filtration stages.*
- *Maximum efficiency of sand control: Coarse and fine sands separation.*
- *Easy installation design, less operating time.*



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

ESP SCREEN VORTEX DESANDER ™



The combination of two stages of separation of sand installed under the pump allows to have an effective elimination of solids before they reach the pump.

This prevents damage to the pump stages and / or the accumulation of sand during shutdowns.

The ESP Vortex Desander™ is installed below the ESP sensor, or with a mechanical packer or a shroud, keeping its principles of operation and separation efficiency.

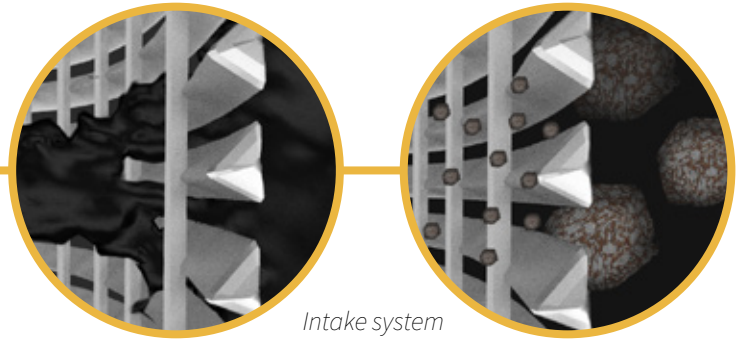
BENEFITS

- *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.*

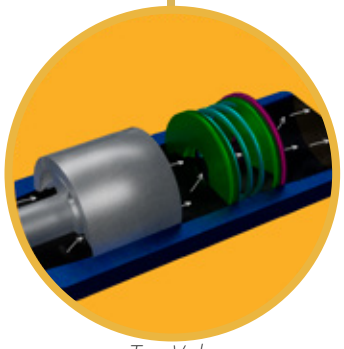
Odessa Separator's ESP Screen Vortex Desander™ maximizes artificial lift run life by separating harmful abrasives

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

TOP BYPASS VALVE™



Intake system



Top Valve

Top Bypass Valve™ is a solution created by OSI to guarantee the flow to the pump increasing the runtime.

The main advantage is that the Top Bypass Valve™ is installed at the top of the assembly ensuring the optimum opening when the pressure difference in the system is greater than 33 psi.

Frequently, the pump intake is plugged by sand, scale, paraffin or several problems simultaneously, with the installation of the Bypass Valve at the top of the assembly, the plugging issues wouldn't affect the runtime.

Top Bypass Valve™ can be used in combination with any OSI system and its application has been tested around the world.

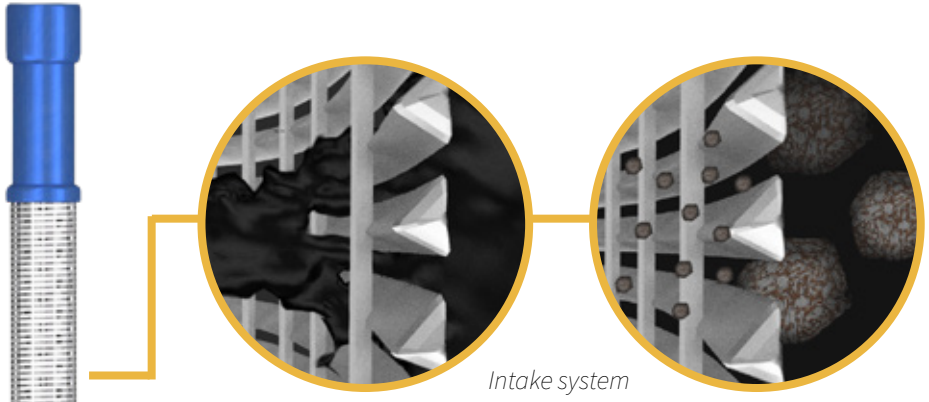
BENEFITS

- *Minimizes effects of plugging issues*
- *Reduces the risk of production loss*
- *Extend equipment run life.*
- *Large particle filtration.*
- *Valve is replaceable.*

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

Top Bypass Valve™ Patent No.: US 2017/0268322 A1

SUPER PERF ™



Intake system

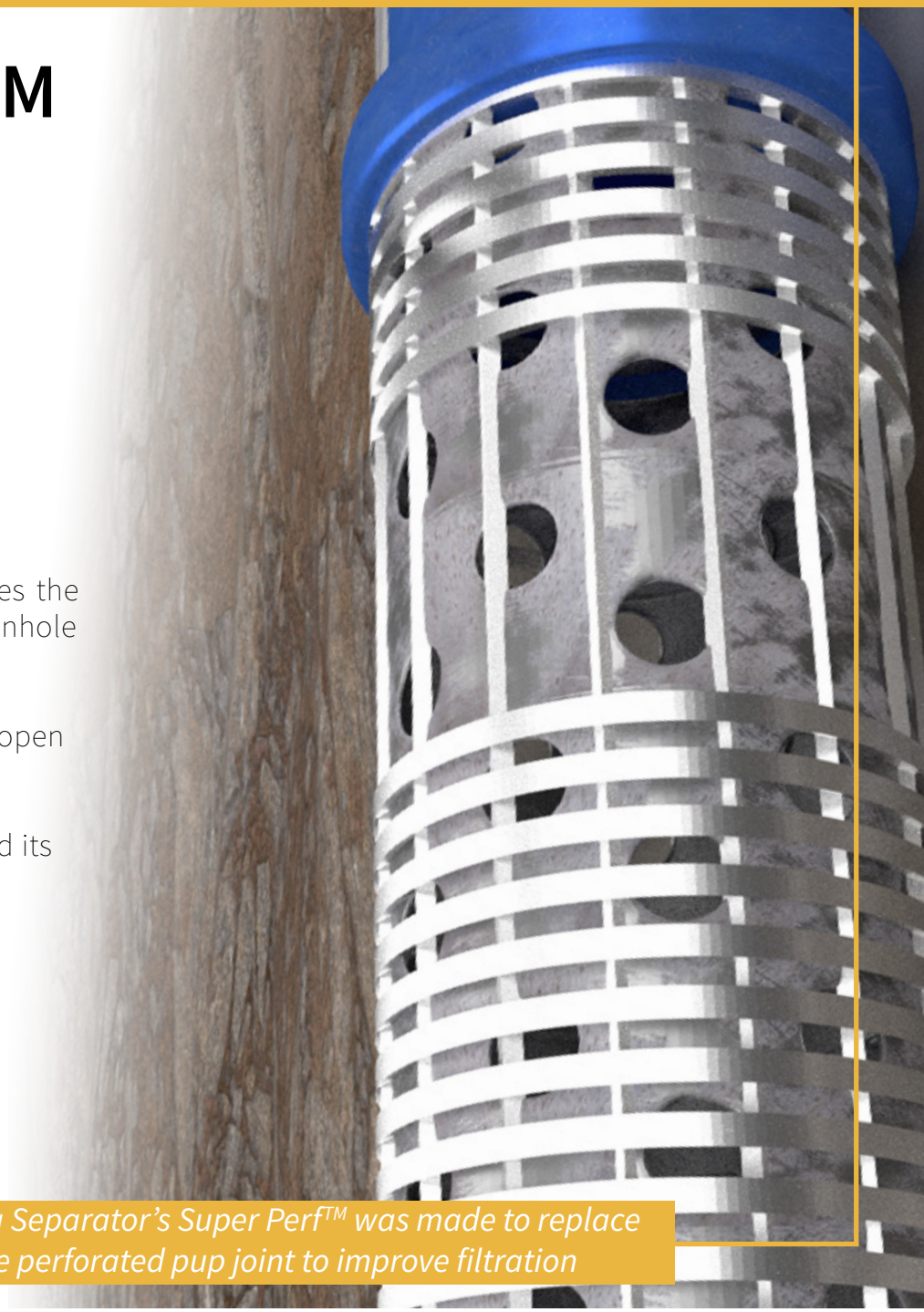
Super Perf™ is a high efficient system that homogenizes the sand slugs coming from the reservoir improving downhole sand management.

It is composed of a large opening mesh with 27 times the open area of a traditional perforated joint.

Super Perf™ is compatible with Any artificial lift system and its use is a complete innovation for the oil industry.

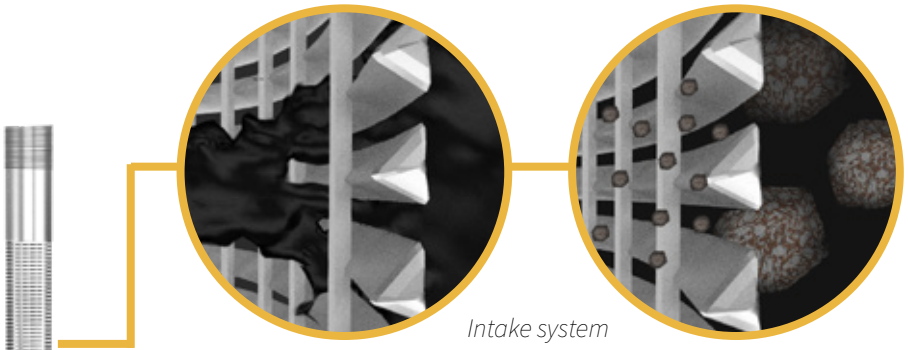
BENEFITS

- *Improves sand management*
- *Homogenizes sand slugs*
- *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.*



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

PUMP GUARD SCREEN ™



Intake system

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 easy and quick installation makes the Pump Guard the best option for the control of sands incurring low installation costs.

BENEFITS

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

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

Oilfield Challenges *GAS*

Improperly conditioned produced gas causes pump pounding, gas lock and ultimately pumping equipment failure.

Hardware at risk

- *Rods*
- *Tubing*
- *ESP Seals / Stages*
- *PCP Elastomer/Rotor*
- *SRP Valves / Guides*

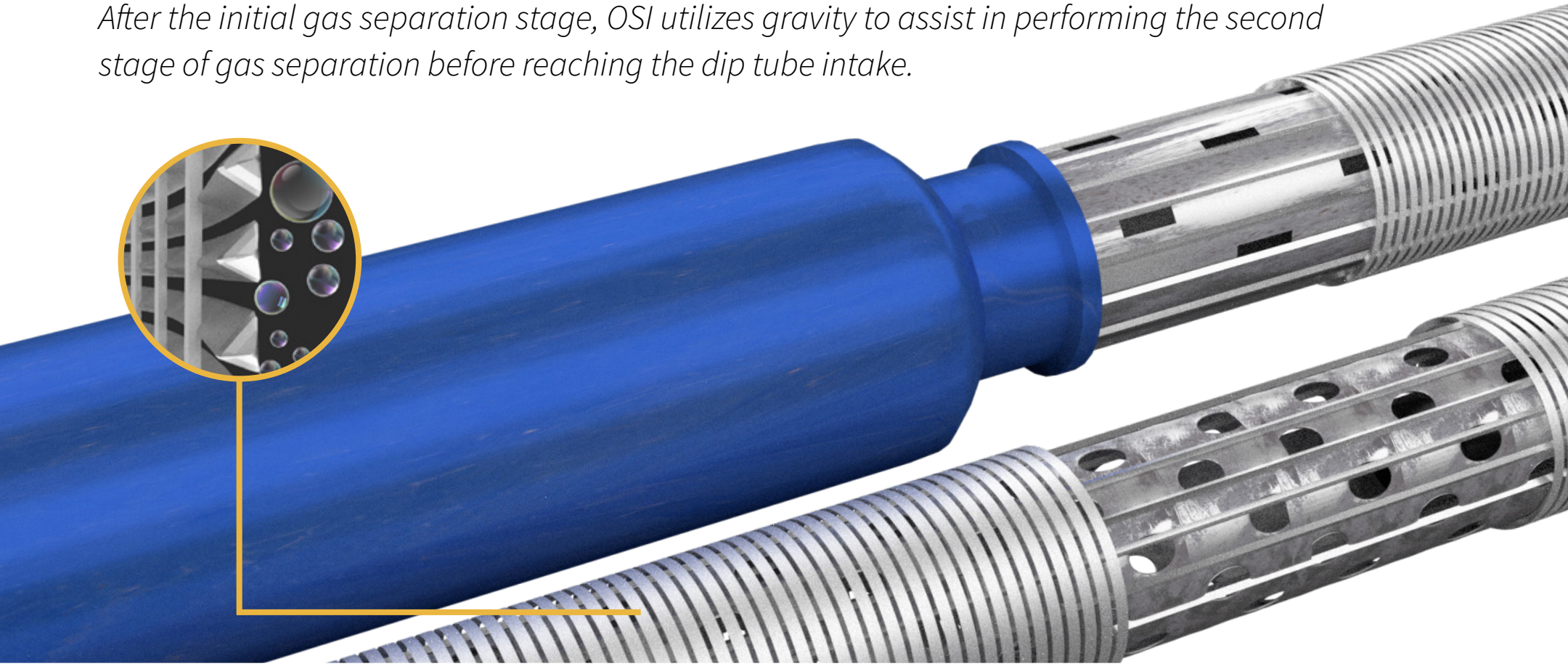
OSI APPROACH

Using a variety of downhole conditioning tools utilizing single & multi stages for separation & filtration, OSI minimizes gas & solids in the well by harnessing the knowledge of OSI sales, engineers, chemists, & field service personnel to work with producer partners to achieve effective and real time solutions.

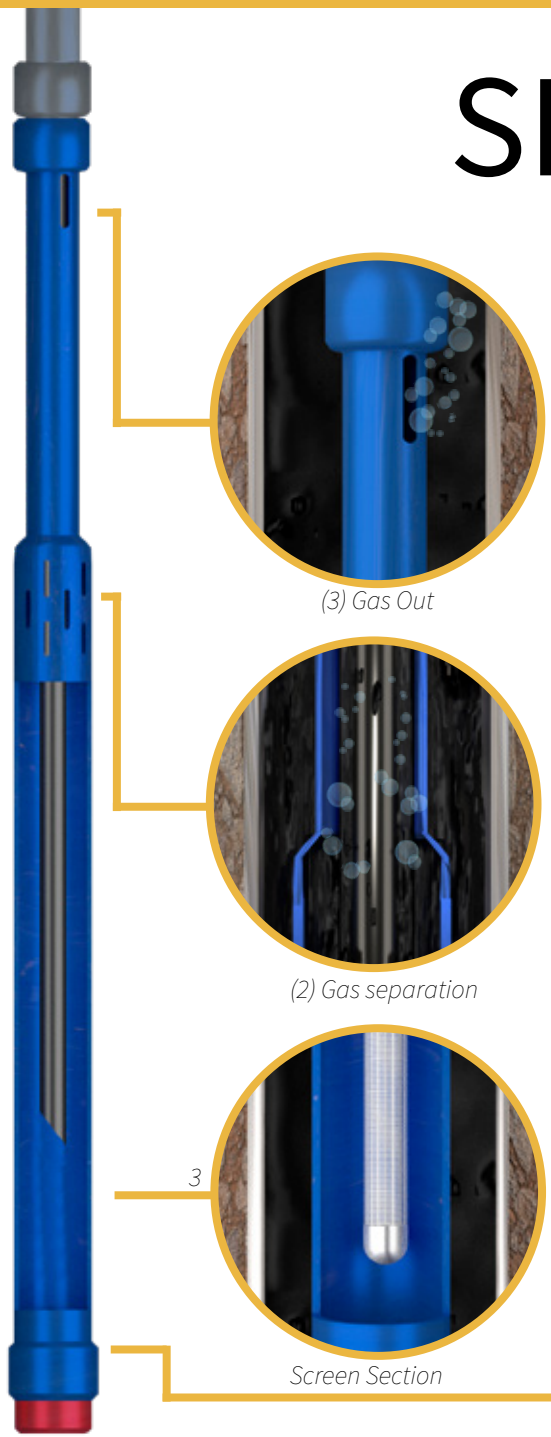
Different Stages of Gas Separation

OSI gas separation units create a pressure drop for breaking out gas in solution in the first stage of intake.

After the initial gas separation stage, OSI utilizes gravity to assist in performing the second stage of gas separation before reaching the dip tube intake.



SLOTTED GAS SHIELD ™



(3) Gas Out

(2) Gas separation

3

Or

Screen Section

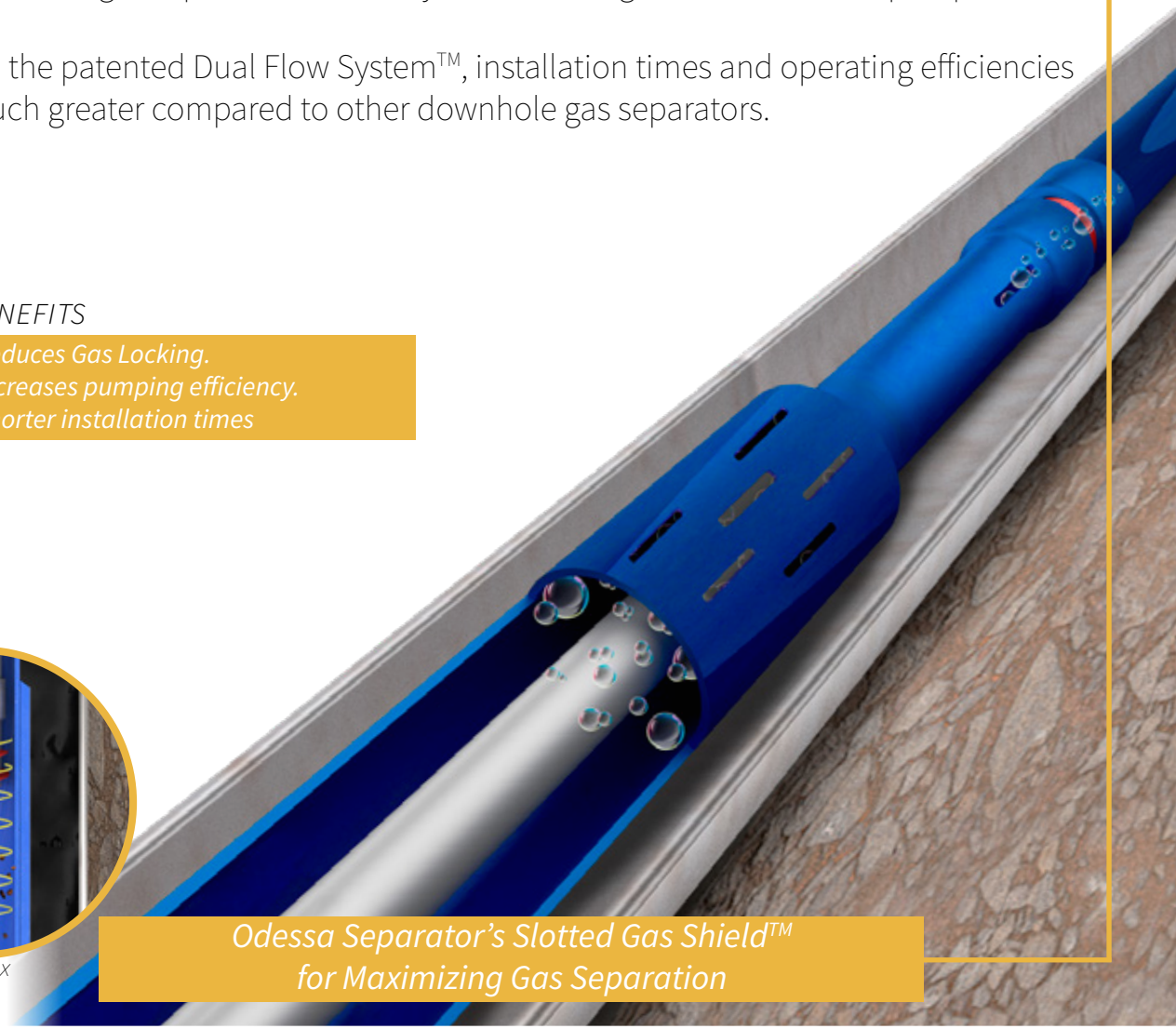
Vortex

Slotted Gas Shield™ is a modified gas separator with a speed reducing ring that increases the gas separation efficiency and delivers gas free fluid to the pump.

Due to the patented Dual Flow System™, installation times and operating efficiencies are much greater compared to other downhole gas separators.

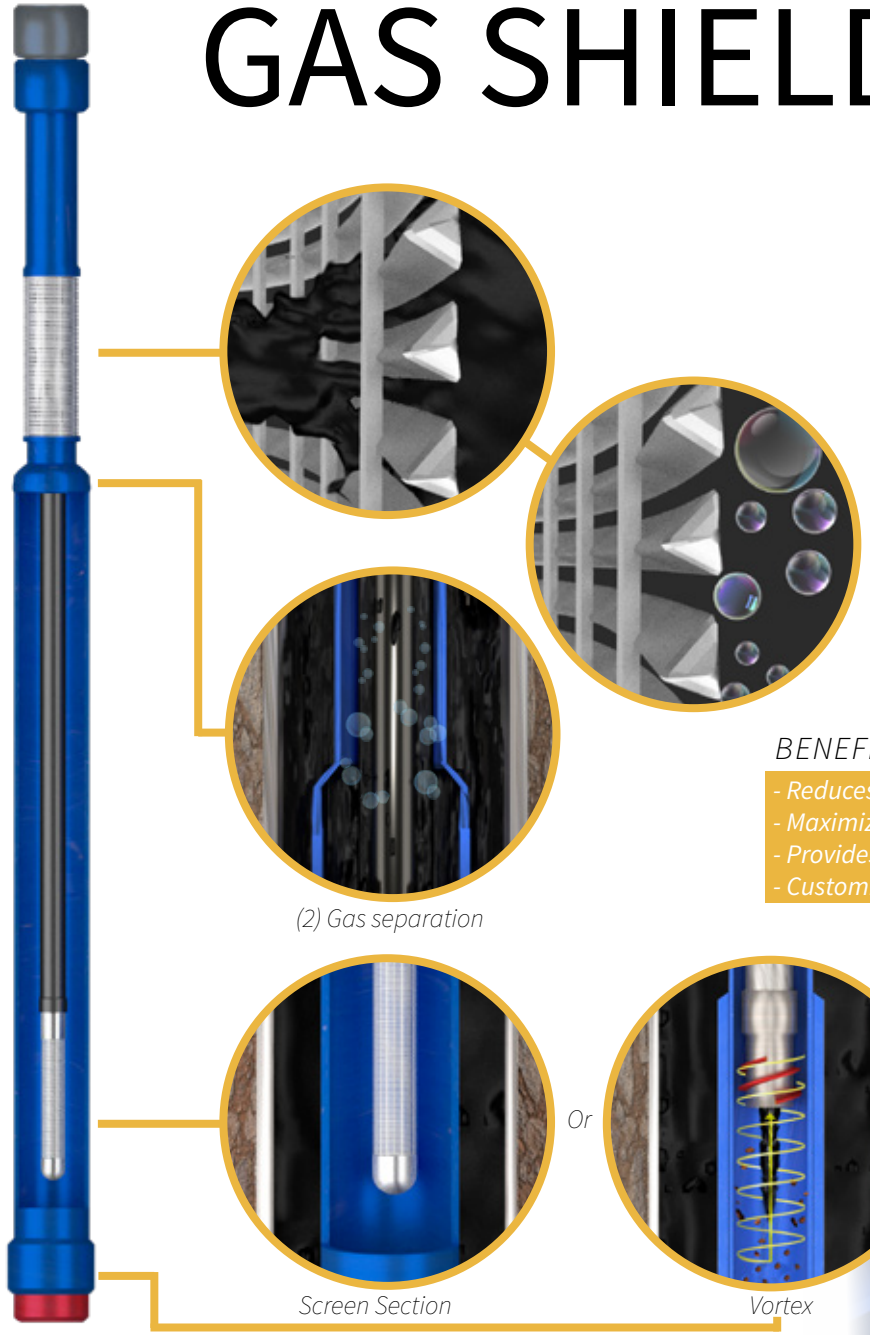
BENEFITS

- *Reduces Gas Locking.*
- *Increases pumping efficiency.*
- *Shorter installation times*



Odessa Separator's Slotted Gas Shield™ for Maximizing Gas Separation

GAS SHIELD ™



(2) Gas separation

Screen Section

Or

Vortex

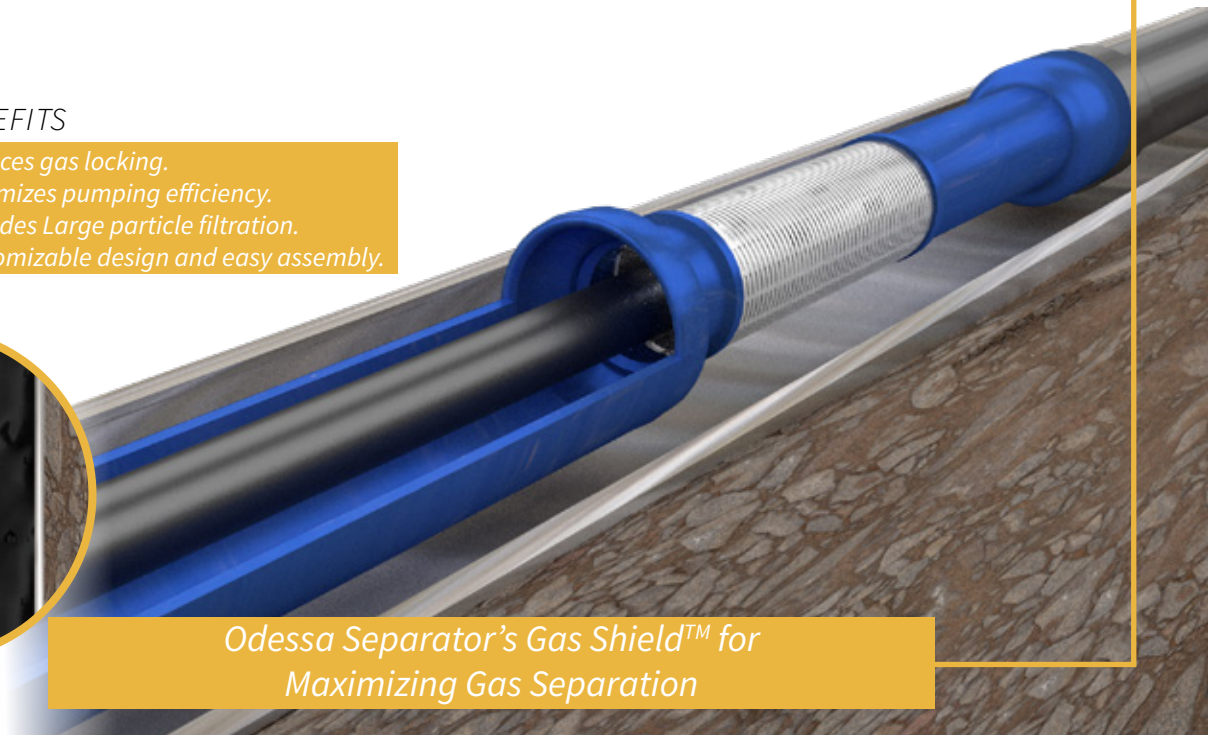
Gas Shield™ is a great innovation of the modified poor boy gas separator.

Through the incorporation of a mesh in the neck of the separator and a larger diameter body, a greater effect of coalescence of the gas bubbles and greater efficiency of separation is achieved.

One of the main additional benefits is the ability to separate large solids and homogenize the sand slugs. The length and diameters of the Gas Shield™ are designed based on the production and mechanical wells conditions.

BENEFITS

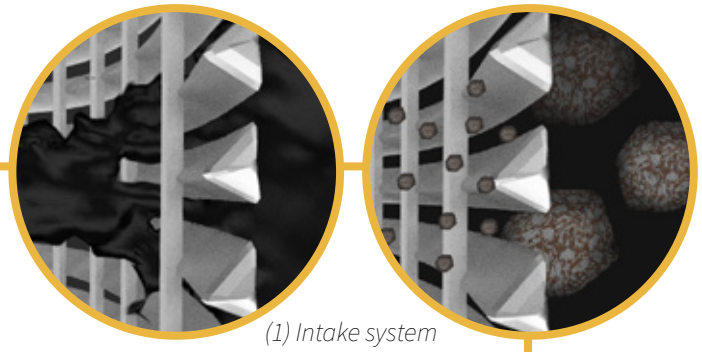
- *Reduces gas locking.*
- *Maximizes pumping efficiency.*
- *Provides Large particle filtration.*
- *Customizable design and easy assembly.*



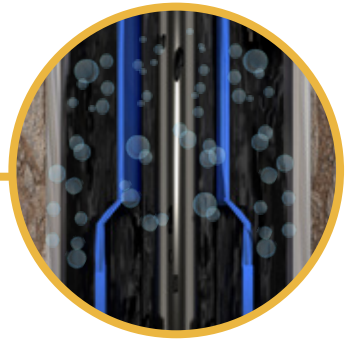
Odessa Separator's Gas Shield™ for Maximizing Gas Separation

COMBINATION TOOL ™

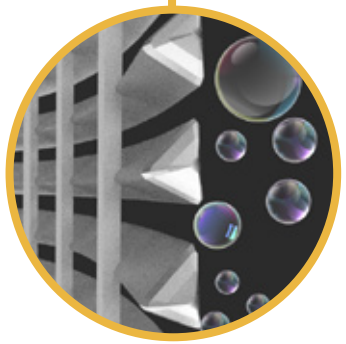
Combination Tool™ Patent No.: US 2017/0268322 A1



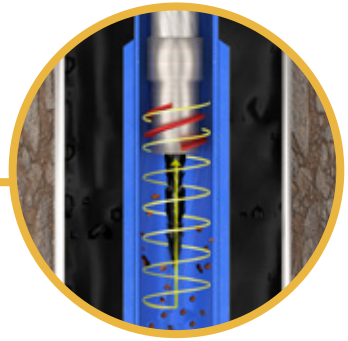
(1) Intake system



(2) Gas Separation



(3) Gas out



(4) Vortex Separator

Mud joint

Combination Tool™ is the concept used by OSI to achieve the maximum optimization of the artificial lift system through the combination of different OSI tools and their operating principles.

Through this concept, conditioning of the fluid is achieved by controlling sand, gas and chemical deposits.

BENEFITS

- *Combined tools for severe sand and gas problems.*
- *Multiple configurations with different principles of operation.*
  - *Bernoulli Principle*
  - *Venturi effect*
  - *Coalescence effect*
  - *Gravitational force*
  - *Centrifugal force*
- *Conditions fluid before entering critical pump's sections.*
- *Larger body annulus to allow reduce the fluid velocity (Depending on the numbers of bodies used).*

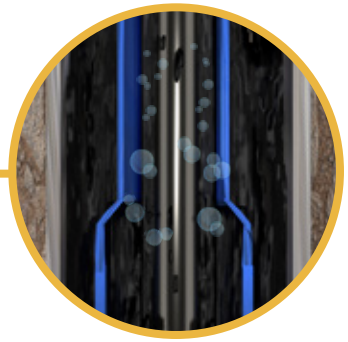
Odessa Separator's Combination Tools Combines Gas Separation and Sand Control

SLOTTED GAS SHIELD ™
W - Gas Vent

Gas Vent - Upstroke

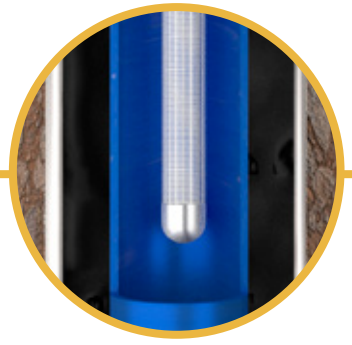
Gas Vent - Downstroke

The Gas Vent is an ultimate component designed to optimize the gas separation in any gas separator in the market. Its function is to release the free gas inside the dip tube and reduces the gas interference when the gas separator capacity is overcome.



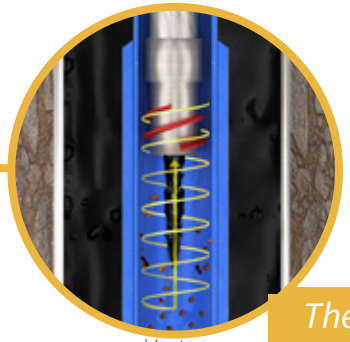
(2) Gas separation

When the standing valve is open (upstroke) the gas vent is closed keeping the gas at the top of the gas separator, when the standing valve is closed (downstroke), the Gas Vent is open allowing the gas to flow upward to the annular section



Screen Section

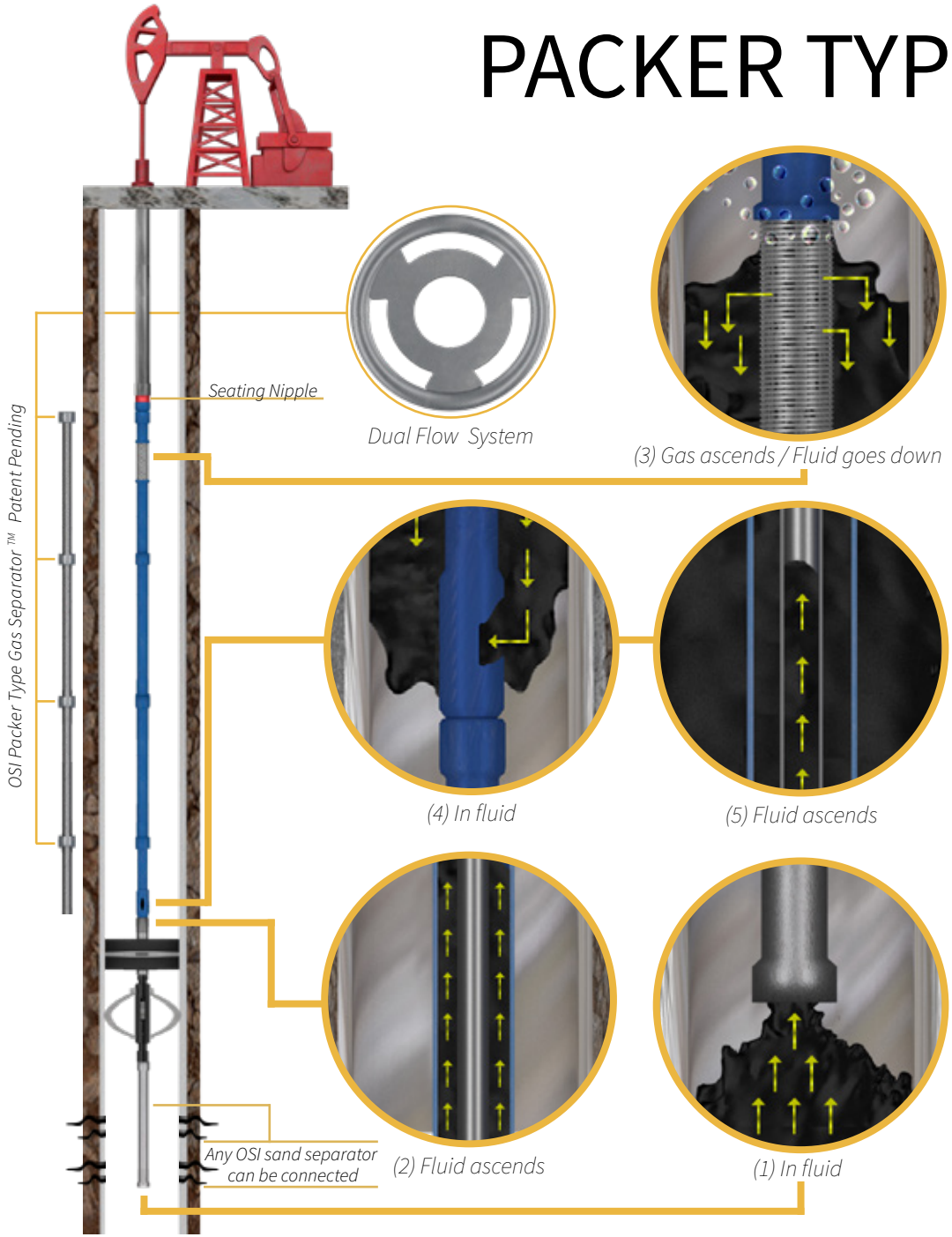
Or



Vortex

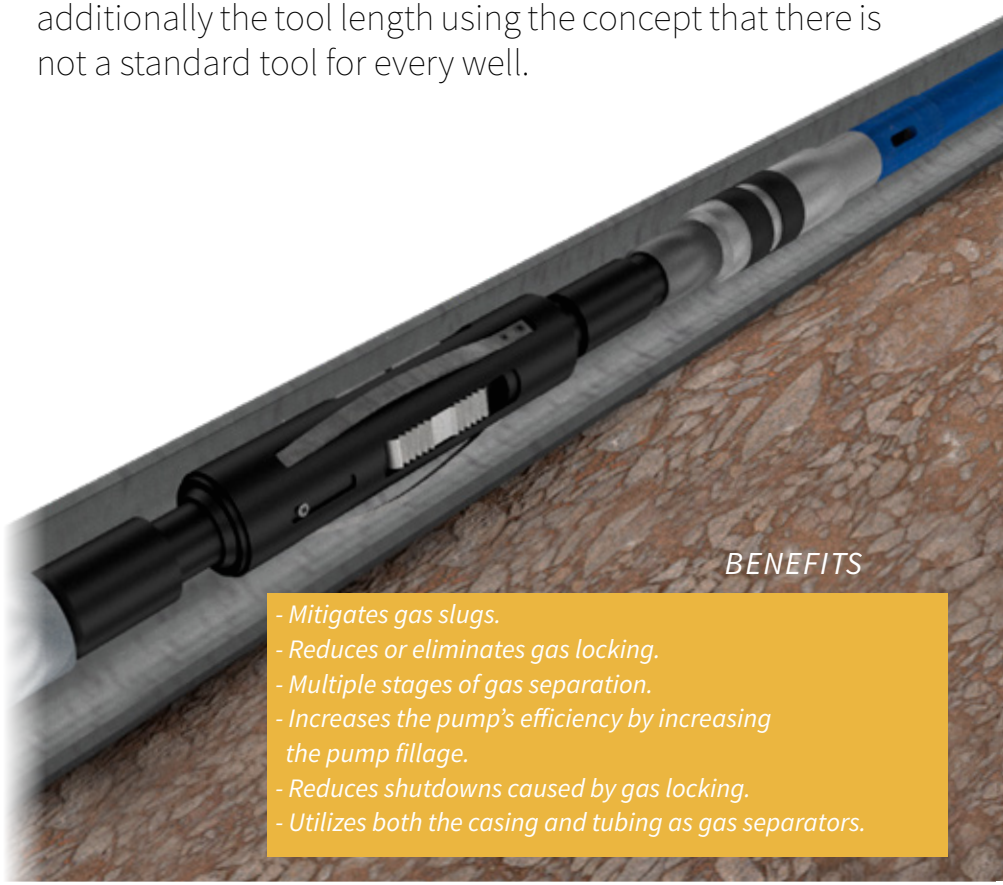
The Gas Vent is located at the top of the Gas Separator and work in synchrony with the pump.

PACKER TYPE GAS SEPARATOR ™



The Packer Type Gas Separator™ is an innovative tool that minimizes gas problems in the lifting systems through the design of the separation sections according to the well conditions.

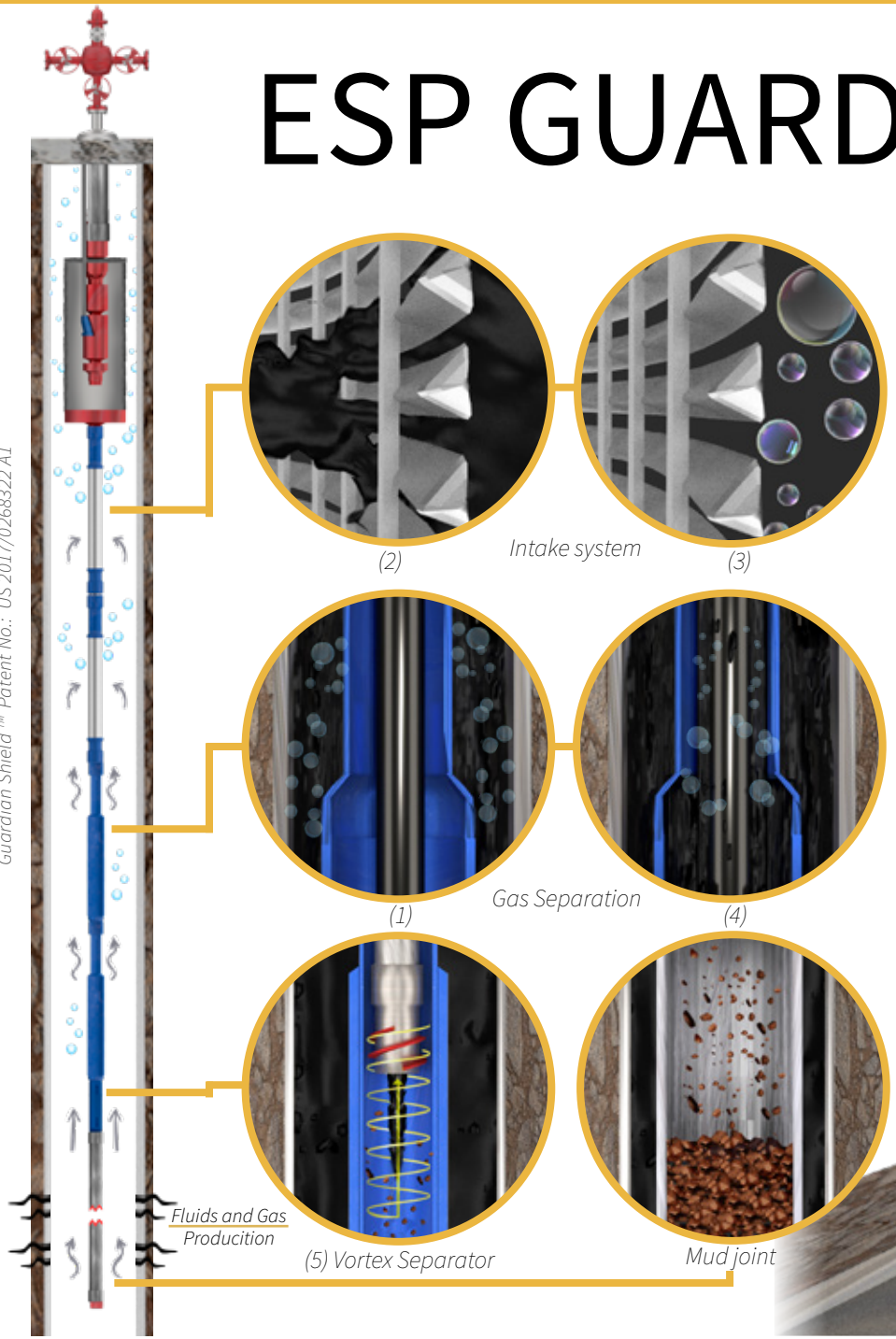
The greatest features of this system is the ability to customize the isolating section, outlet and intake point and additionally the tool length using the concept that there is not a standard tool for every well.



BENEFITS

- *Mitigates gas slugs.*
- *Reduces or eliminates gas locking.*
- *Multiple stages of gas separation.*
- *Increases the pump's efficiency by increasing the pump fillage.*
- *Reduces shutdowns caused by gas locking.*
- *Utilizes both the casing and tubing as gas separators.*

ESP GUARDIAN SHIELD ™



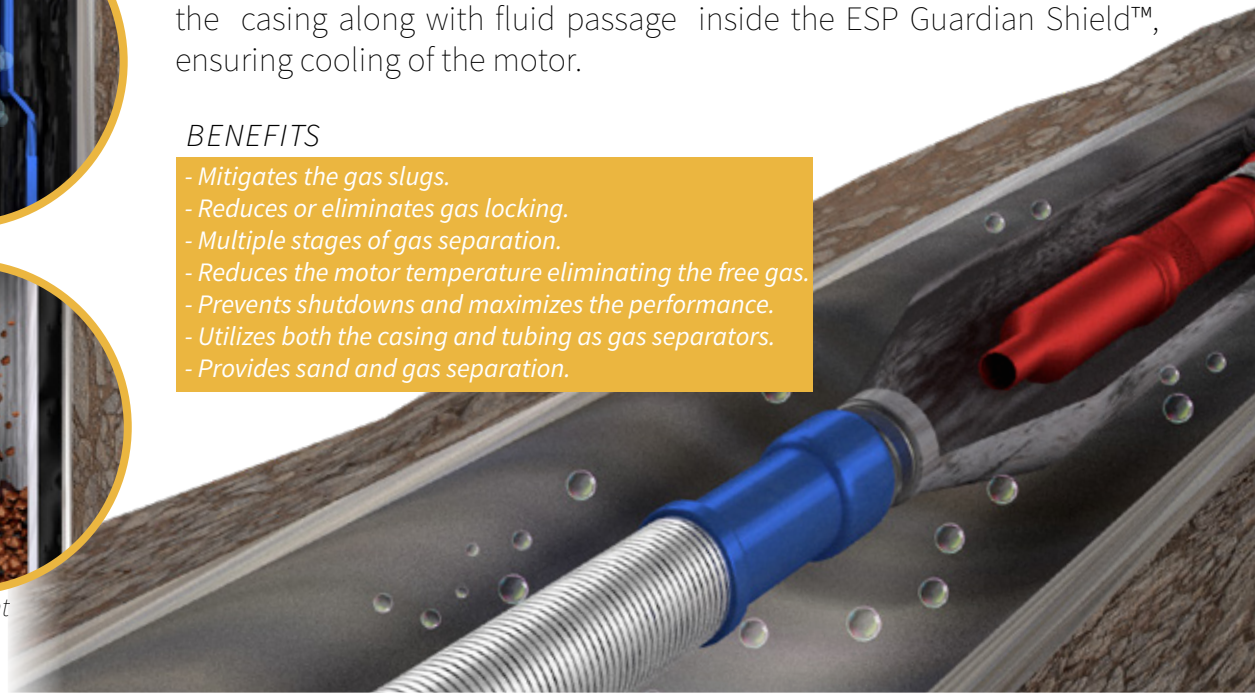
Guardian Shield™ Patent No.: US 2017/0268322 A1

New unconventional wells have been a huge challenge for ESPs. In horizontal wells with high-formation GORs or GLRs, the pumped fluid can cause issues such as gas interference, gas locking, short run life, low production, poor energy efficiency, increased failure rates, shutdowns, and so forth. A major problem is the presence of gas around the ESP, that causes It causes the motor to rapidly overheat because the gas is incapable of adequately cooling.

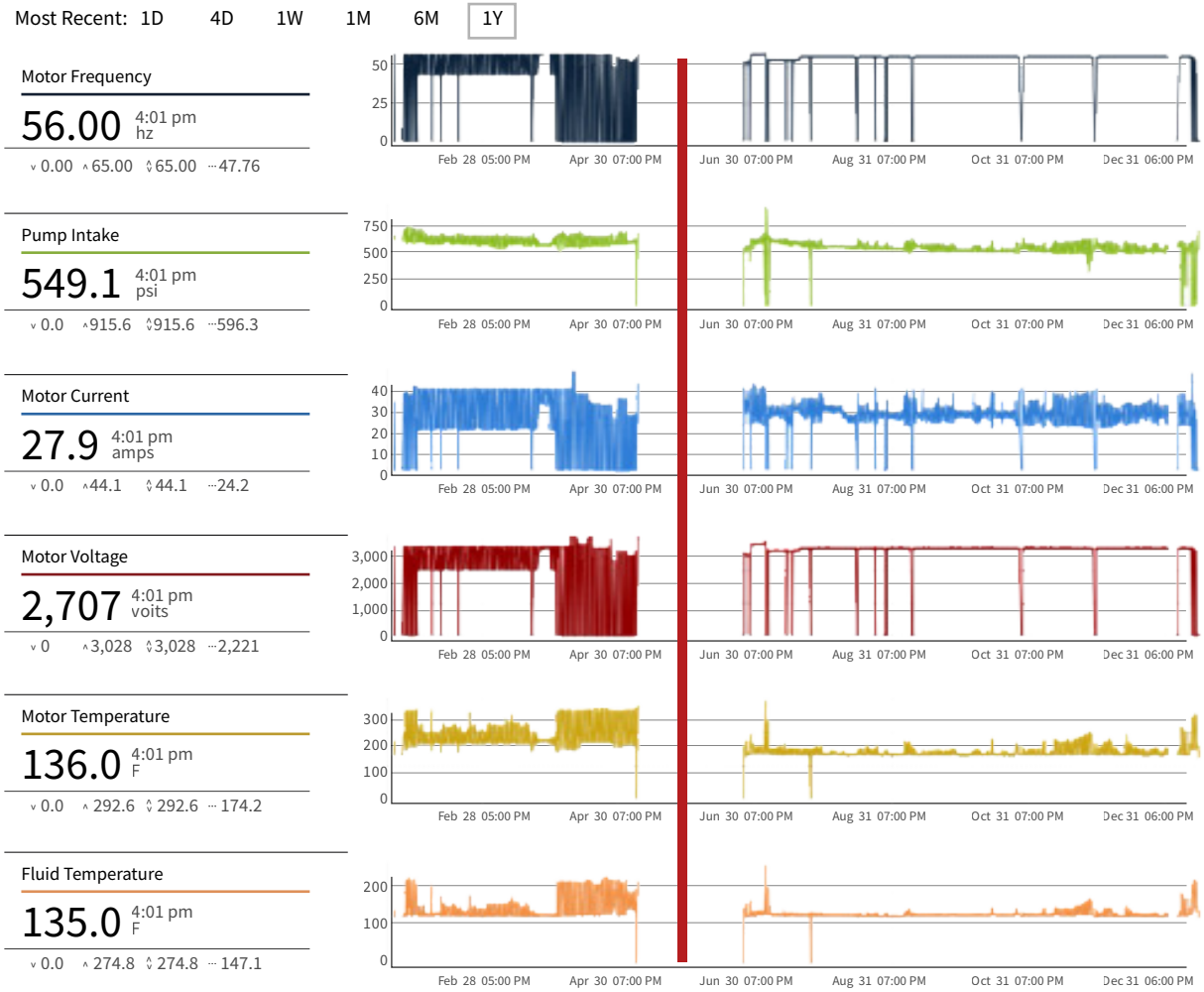
The ESP Guardian Shield™ prevents large slugs of gas from reaching the pump, which helps to stabilize production and reduce the unforeseen interruption. ESP Guardian Shield™ is designed to avoid gas entrance into ESPs by forcing free gas to go around the shroud and protrude through the casing along with fluid passage inside the ESP Guardian Shield™, ensuring cooling of the motor.

BENEFITS

- *Mitigates the gas slugs.*
- *Reduces or eliminates gas locking.*
- *Multiple stages of gas separation.*
- *Reduces the motor temperature eliminating the free gas.*
- *Prevents shutdowns and maximizes the performance.*
- *Utilizes both the casing and tubing as gas separators.*
- *Provides sand and gas separation.*



Well Performance Before & After OSI's BHA Design



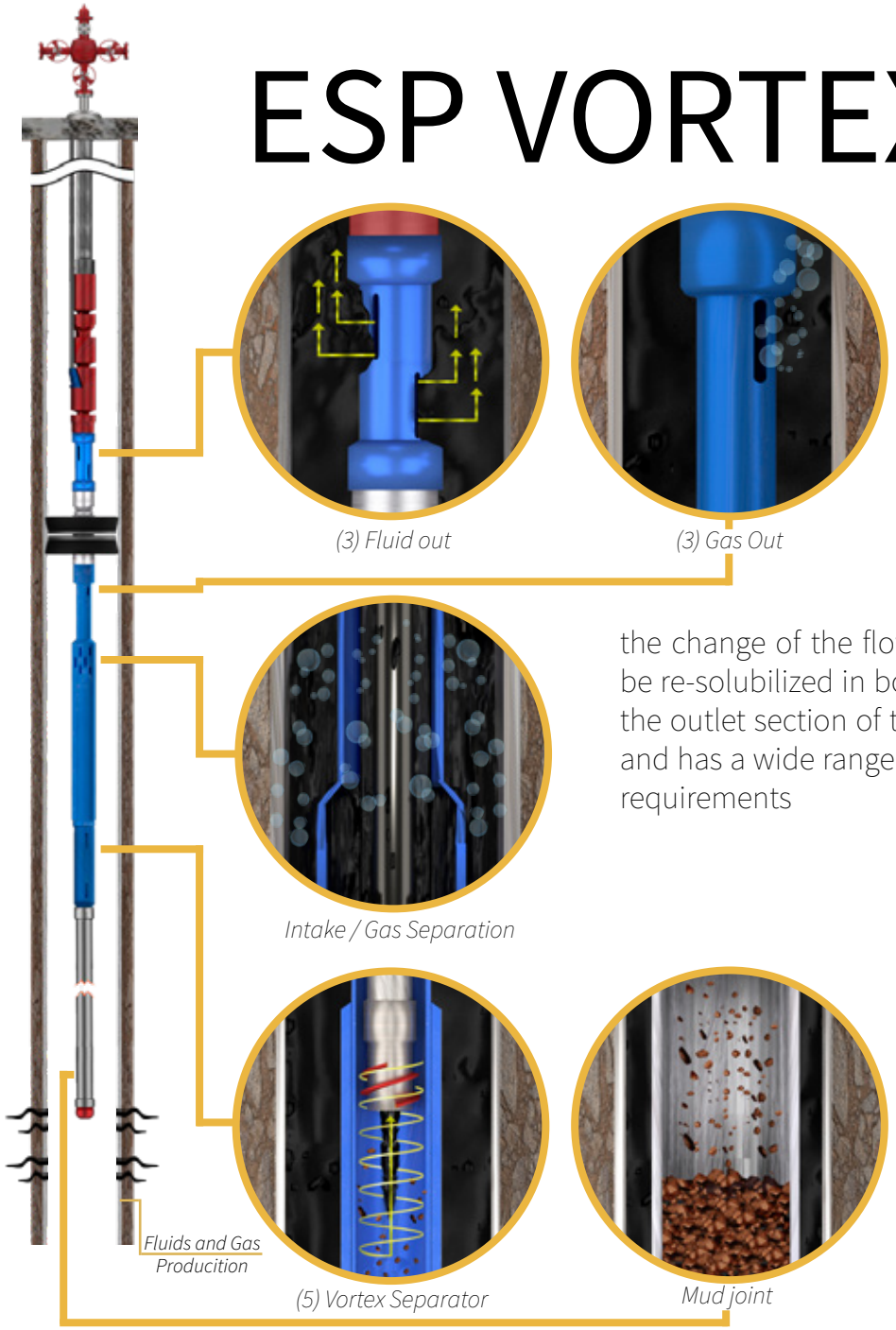
- Average motor temperature and Fluid temperature almost dropped by 100° F. Average motor temperature dropped from 182.3° F to 139.3° F after OSI's tool installation

- The difference between motor temperature and fluid temperature is 2° F indicating high gas separation efficiency with negligible free gas presence

- Along with that, the fluctuations in the temperature has reduced and become constant which hadn't been observed before

- Motor frequency remained stable which prevented ESP shutdowns, increasing the pump efficiency

ESP VORTEX REGULATOR™



ESP Vortex Regulator™ is a new technology specially designed to separate sand and regulate the gas slugs delivering a clean and mix fluid to the ESP.

Its functionality prevents mechanical damage to the pump and downtime due to overheating or gas lock.

The gas slugs are eliminated through the change of the flow regime, forcing the gas bubbles to be re-solubilized in both sections, the slotted intake and the outlet section of the system. Its installation is easy and has a wide range of applications with minimum requirements

BENEFITS

- *Reduces the downtime due to solid issues.*
- *A Cap string can be set below the packer and below the ESP Vortex Regulator*
- *Less interventions and less investment in CAPEX.*
- *Stable pump parameters: Vibration, frequency, voltage and motor current.*
- *Avoid the premature failures of the pump components caused by the sand.*

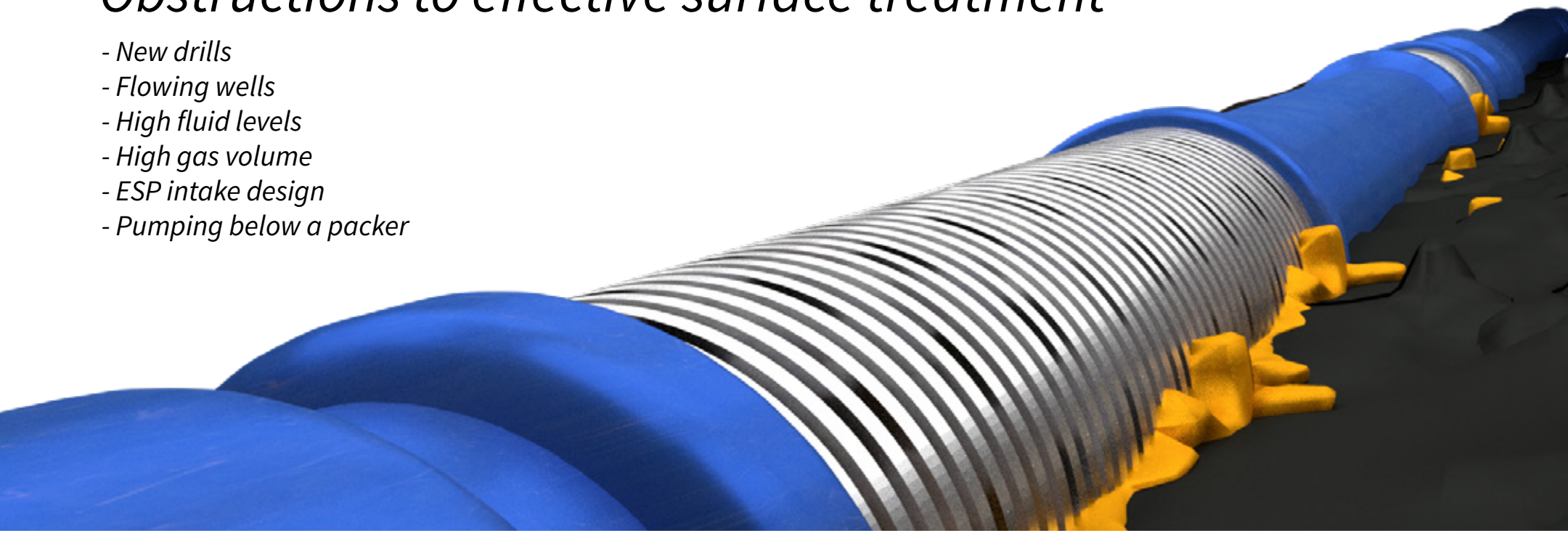
Oilfield Challenges CHEMICAL

Operators use downhole hardware to filter, condition, manipulate, and redirect harmful solids & gas in oil & gas wells. However, other agents of destruction downhole must be confronted with chemicals.

Common surface chemical treatments are expensive and chemicals are difficult to apply effectively. Placing chemical where it is needed and retention have proven difficult. OSI's proprietary systems offer a solution.

Obstructions to effective surface treatment

- *New drills*
- *Flowing wells*
- *High fluid levels*
- *High gas volume*
- *ESP intake design*
- *Pumping below a packer*



OSI understands the lack of effective chemical treatment programs hinder efficient pumping operations.

OSI APPROACH

Using a variety of laboratory testing capabilities and working with producer partners, OSI achieves effective and ongoing real time solutions long after the tool is installed.

Our field personnel carry out residual tests using procedures based on A.S.T.M, N.A.C.E, & A.W.W.A. published test methods.

Chemical formulations

- *Paraffin, Asphaltene, Resins*
- *Inhibitor*
- *Acid Surfactant*
- *Defoamer*
- *Silver Bullet*
- *Biocide Applications*
- *Super Scavenger*
- *THPS*

CHEM STICKS ™

Designed for wells looking to inject a quick and easy chemical shock, OSI ChemSticks™ are dropped directly into the well from the surface. Corrosion, scale, paraffin, or other destructive downhole agents are now easier than ever to combat.

Based on OSI's patented micro-encapsulation technology, the ChemSticks™ are simple supplements to enhance chemical treatment, requiring no additional costly resources.

ChemSticks™ are ordered with general or well-specific formulas for any flowing well or any artificial lift well: SRP, ESP, PCP, gas lift, plunger lift, and jet pump.

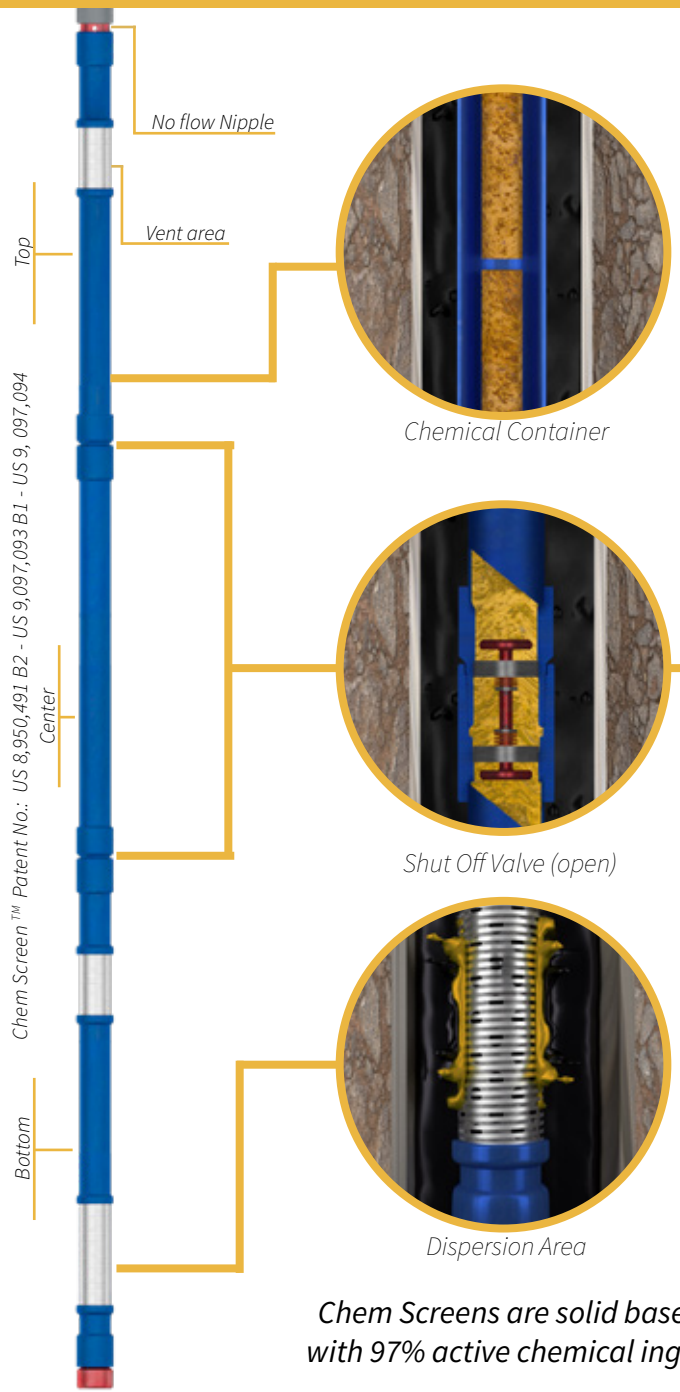
BENEFITS

- *Well-specific prescriptions are based upon water & oil analysis.*
- *All corrosion sticks have quat + scavenger include for combatting H2S.*

Each ChemStick™ pack has 4 sticks of well specific or general formulas comprised of inhibitors addressing corrosion, scale, paraffin, asphaltenes, foaming, & combo formulas

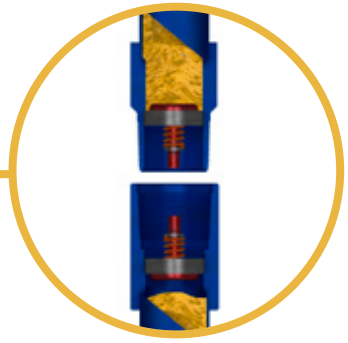
Chem Sticks™ Patented No.: US 8,950,491 B2 - US 9,097,093 B1 - US 9, 097,094

CHEM SCREEN ™
W-Shut Off Valve



Chemical Container

Shut Off Valve (open)


Shut Off Valve (close)
No spillage

Dispersion Area

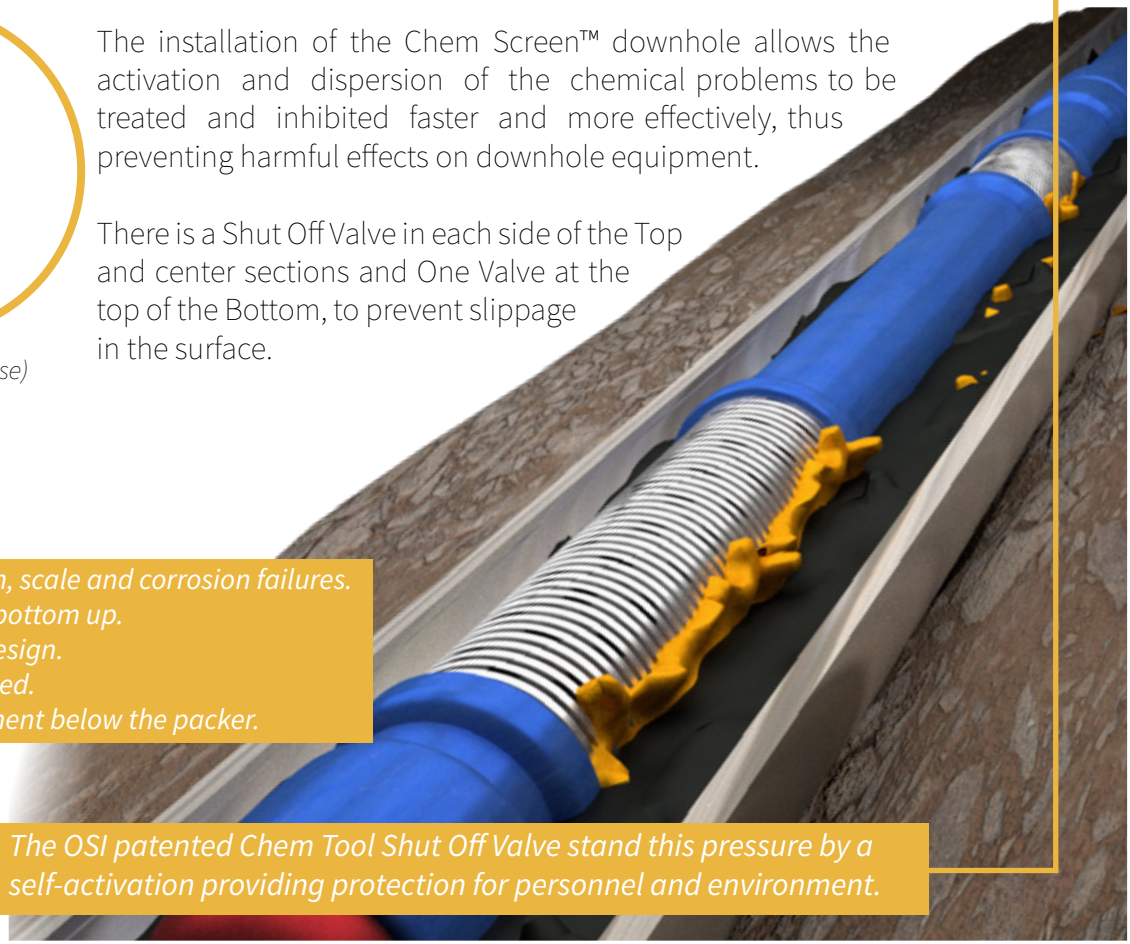
Chem Screen™ is a new technology that challenges the traditional concept of downhole chemical treatment. Through the micro- encapsulation technology, all the active components of the most effective liquid chemical treatments in the oil industry are processed in a solid stick that is then installed before the pump intake.

The installation of the Chem Screen™ downhole allows the activation and dispersion of the chemical problems to be treated and inhibited faster and more effectively, thus preventing harmful effects on downhole equipment.

There is a Shut Off Valve in each side of the Top and center sections and One Valve at the top of the Bottom, to prevent slippage in the surface.

BENEFITS

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

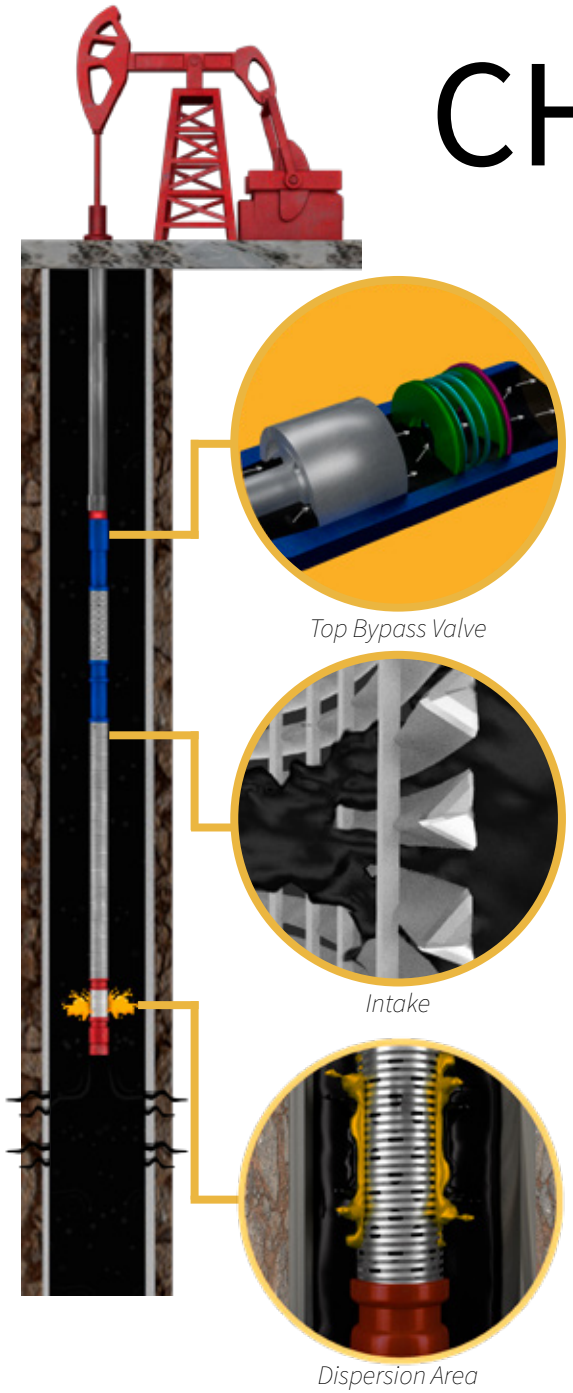


The OSI patented Chem Tool Shut Off Valve stand this pressure by a self-activation providing protection for personnel and environment.

Chem Screens are solid based blend with 97% active chemical ingredients.

CHEM FILTER TOOL ™

3 in 1



Top Bypass Valve

Intake

Dispersion Area

1- Chemical Screen:

- Fluid conditioning that treats all chemical issues
- Bottom-up downhole chemical treatment (Longevity based on production)

2- Sand filtration tool:

- Reduces sand failures and interventions

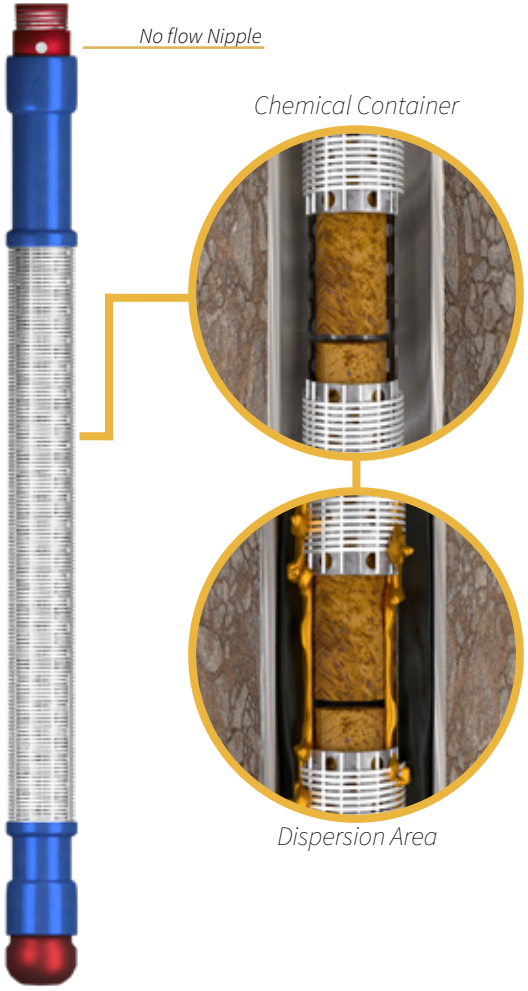
3- Bypass valve:

- Activates to extend the run life of the pump

Downhole chemical treatment and sand filtration at once

Downhole chemical treatment and sand filtration at once

QUICK RELEASE ™



Quick Release ™ Patent No.: US 8,950,491 B2 - US 9,097,093 B1 - US 9, 097,094

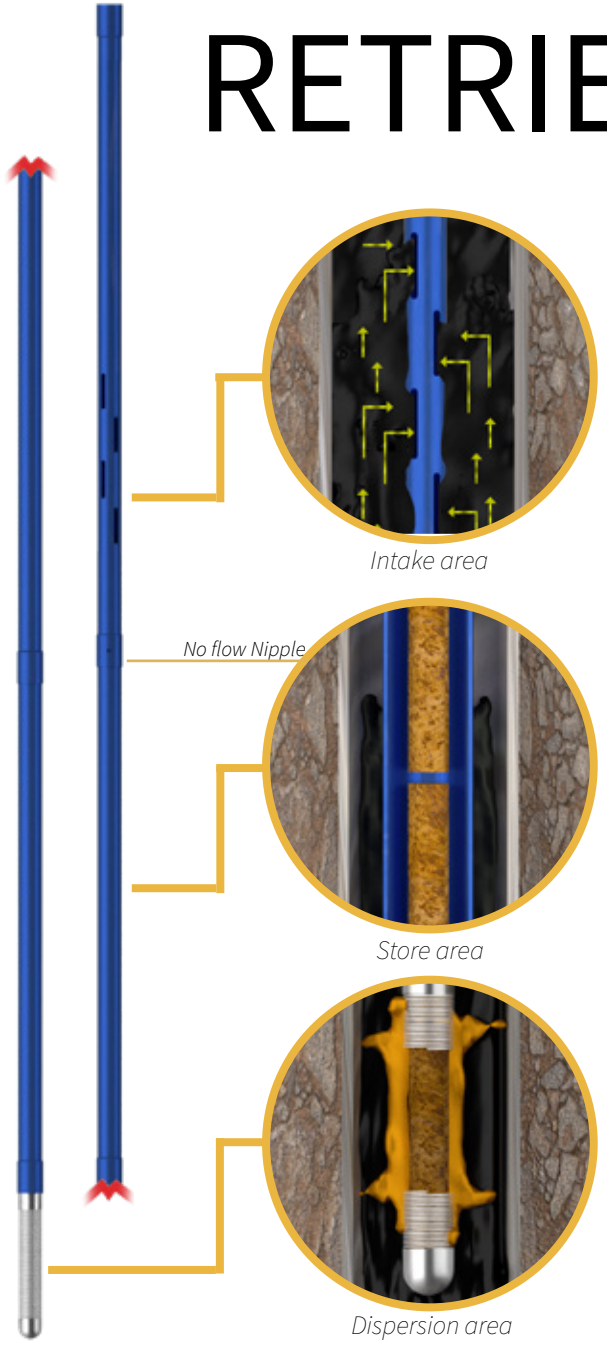
Quick Release™ is a chemical shock treatment for wells with severe chemical problems. Its main advantage is that it treats the well from the bottom with a high concentration of chemical treatment to balance the downhole conditions of the system.

Quick Release™ is perfectly compatible with the Chem Screen™, offering a total solution to provide a strong initial treatment.

BENEFITS

- *High concentration treatment.*
- *Reduces paraffin, scale and corrosion failures.*
- *Treats from the bottom up.*
- *Refillable tool design.*
- *Fast, self release for a shock treatment.*
- *Chemical treatment below the packer.*

RETRIEVABLE CHEM TOOL ™



Retrievable Chem Tool™ Patent No.: US 8,950,491 B2 - US 9,097,093 B1 - US 9, 097,094

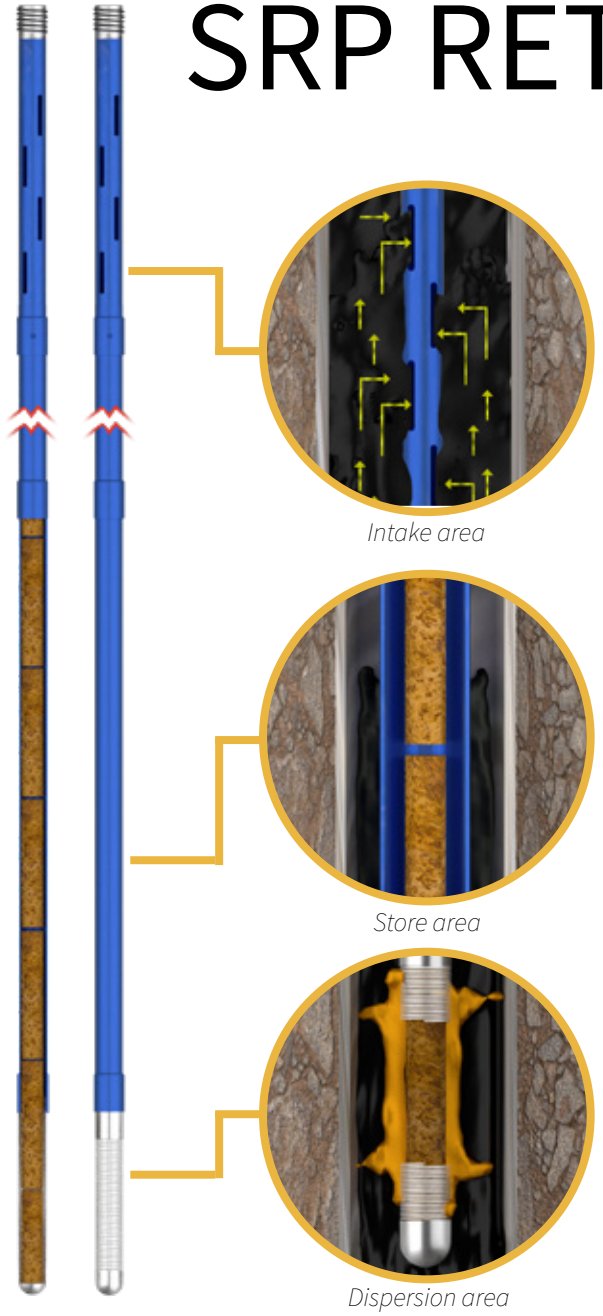
The Retrievable Chem Tool™ is designed specifically for wells with high lifting cost that have chemical issues downhole, such as corrosion, scale, paraffin, asphaltenes, etc. The tool provides an even distribution of well-specific chemicals while offering an easy installation.

In Gas Lift or Plunger Lift applications, the tool is installed via slickline, sitting inside the X or XN Nipple, and is held in place with a standard X lock plug. After installation, the tool comes in contact with wellbore fluid, releasing the chemical through the screen at the bottom of the well. It offers a controlled dispersion from the bottom up, which protects the artificial lift system.

BENEFITS

- *Slow, self release of chemical(s).*
- *Up to 6 months of chemical treatment.*
- *Reduces paraffin, scale, and corrosion failures.*
- *Variety of well specific recipes (paraffin, asphaltenes, corrosion, scale).*
- *Can be easily installed, set, & retrieved with wireline or slickline.*
- *Low installation costs.*

SRP RETRIEVABLE CHEM TOOL ™



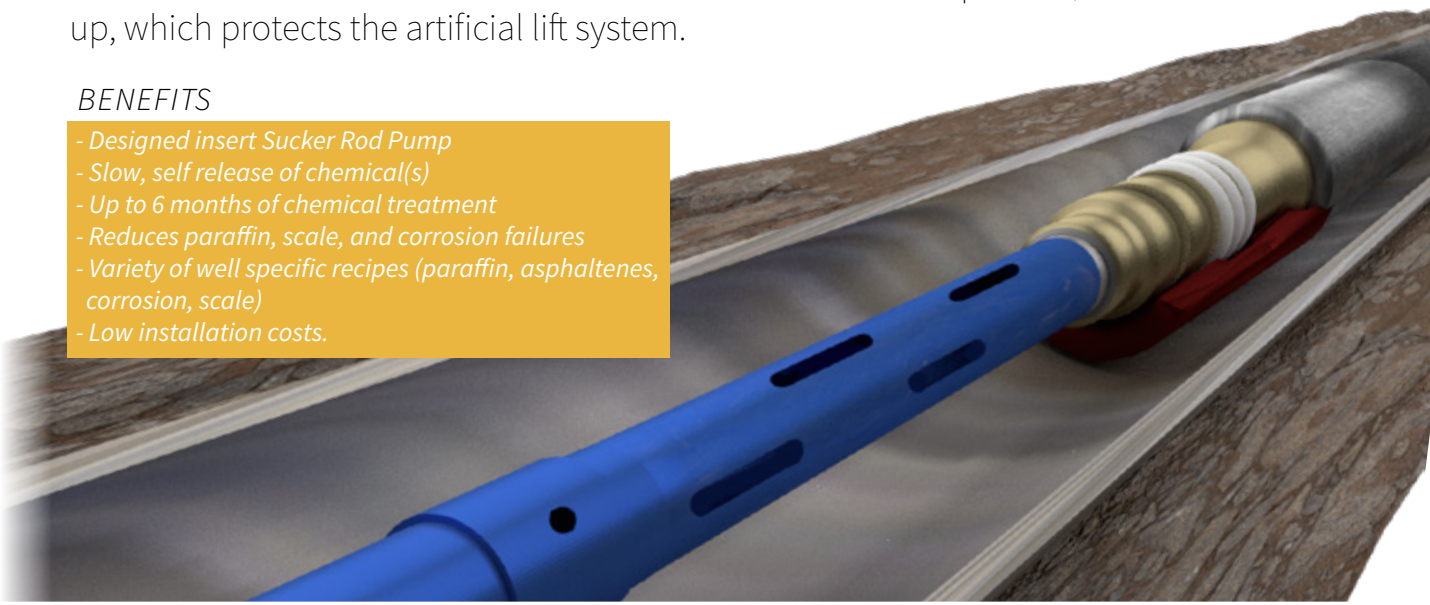
The SRP Retrievable Chem Tool™ is designed specifically for wells with high lifting cost that have chemical issues downhole, such as corrosion, scale, paraffin, asphaltenes, etc. The tool provides an even distribution of well-specific chemicals while offering an easy installation.

The SRP Retrievable Chem Tool™ is easily installed below the coupling of the insert rod pump, which translates into lower operating costs since it is not necessary to pull out the production tubing.

This features makes it the best alternative to condition the fluid from the bottom of the well, improving the life of the sucker rod pumps and well production. After installation, the tool comes in contact with wellbore fluid, releasing the chemical product through the screen at the bottom of the well. It offers a controlled dispersion, from the bottom up, which protects the artificial lift system.

BENEFITS

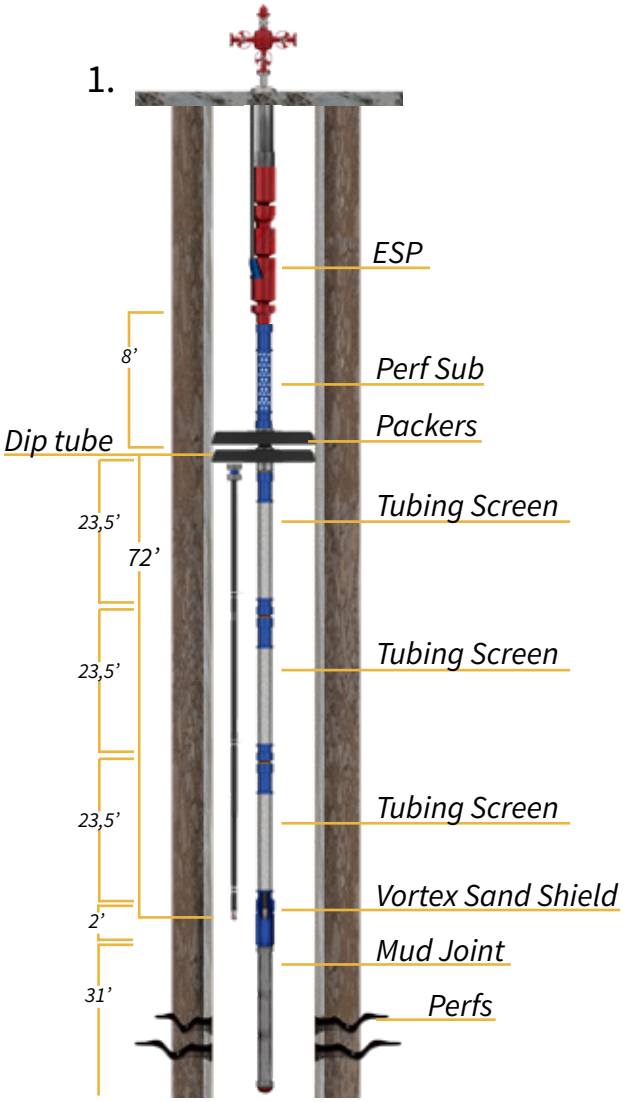
- *Designed insert Sucker Rod Pump*
- *Slow, self release of chemical(s)*
- *Up to 6 months of chemical treatment*
- *Reduces paraffin, scale, and corrosion failures*
- *Variety of well specific recipes (paraffin, asphaltenes, corrosion, scale)*
- *Low installation costs.*

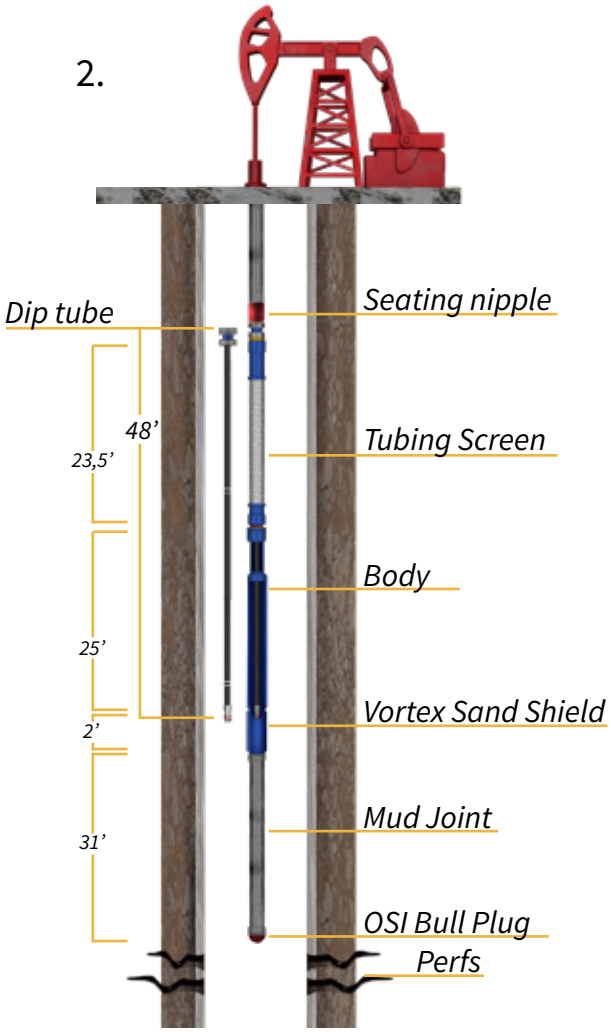


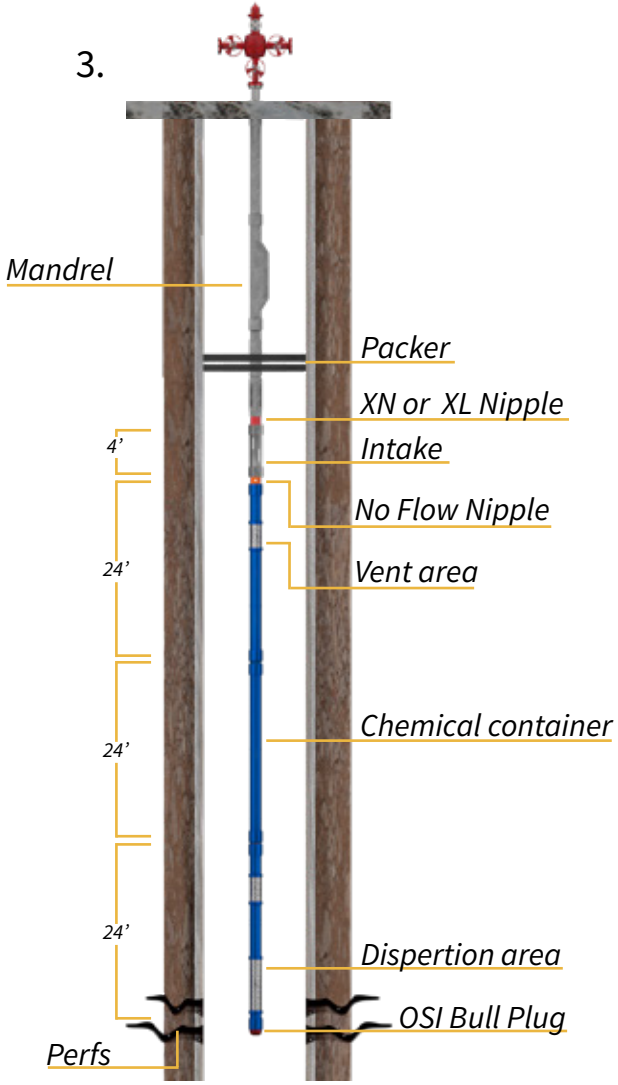
SRP Retrievable Chem Tool™ Patent No.: US 8,950,491 B2 - US 9,097,093 B1 - US 9, 097,094

Wellbore Applications

1. ESP configuration, using Perf Sub - Packer - Tubing Screen with 72' Dip Tube - Vortex Sand Shield and Mud joint.
2. Beam pump configuration, Combination Tool with 48' Dip Tube (Sand and Gas Separator).
3. Gas Lift Configuration, Tubing Mandrel, Packer, XN or XL Nipple, Intake 4' (slotted sub), Chem Screen 72'.







TECHNICAL SPECIFICATION

Filtration / Sand Control

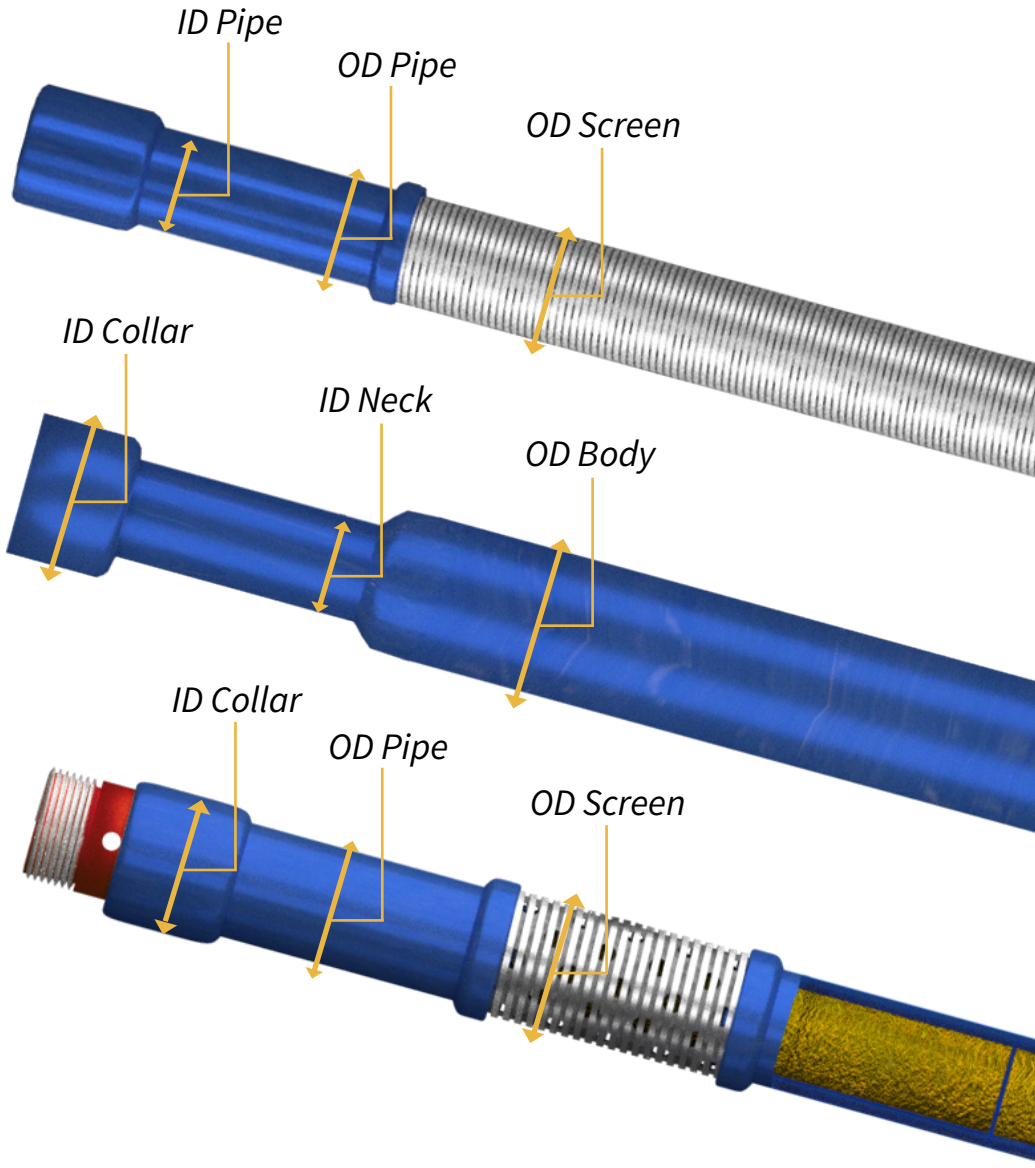
	Pipe (in)		Screen (in)	Collar (in)	
Sizes	OD	ID	OD	OD	ID
2 - 3 / 8"	2.375	1.941	2.870	3.063	2.375
2 - 7 / 8 "	2.875	2.441	3.370	3.668	2.875
3 - 1 / 2"	3.500	3.066	3.940	4.500	3.500

Gas separation

	Neck (in)		Body (in)		Collar (in)	
Sizes	OD	ID	OD	ID	OD	ID
2 - 3 / 8" x 3"	2.375	1.941	3.000	2.500	3.063	2.375
2 - 7 / 8 " x 3 - 1 / 2 "	2.875	2.441	3.500	3.000	3.668	2.875
2 - 7 / 8 " x 4"	2.875	2.441	4.000	3.500	3.668	2.875
2 - 7 / 8 " x 4 - 1 / 2"	2.875	2.441	4.500	4.000	3.668	2.875
3 - 1 / 2" x 4 - 1 / 2 "	3.500	3.066	4.500	4.000	4.500	3.500
3 - 1 / 2" x 5 - 1 / 2"	3.500	3.066	5.500	5.000	4.500	3.500

Chemical Treatment

	Pipe (in)		Screen (in)	Collar (in)	
Sizes	OD	ID	OD	OD	ID
2 - 3 / 8"	2.375	1.941	2.870	3.063	2.375
2 - 7 / 8 "	2.875	2.441	3.370	3.668	2.875
3 - 1 / 2"	3.500	3.066	3.940	4.500	3.500



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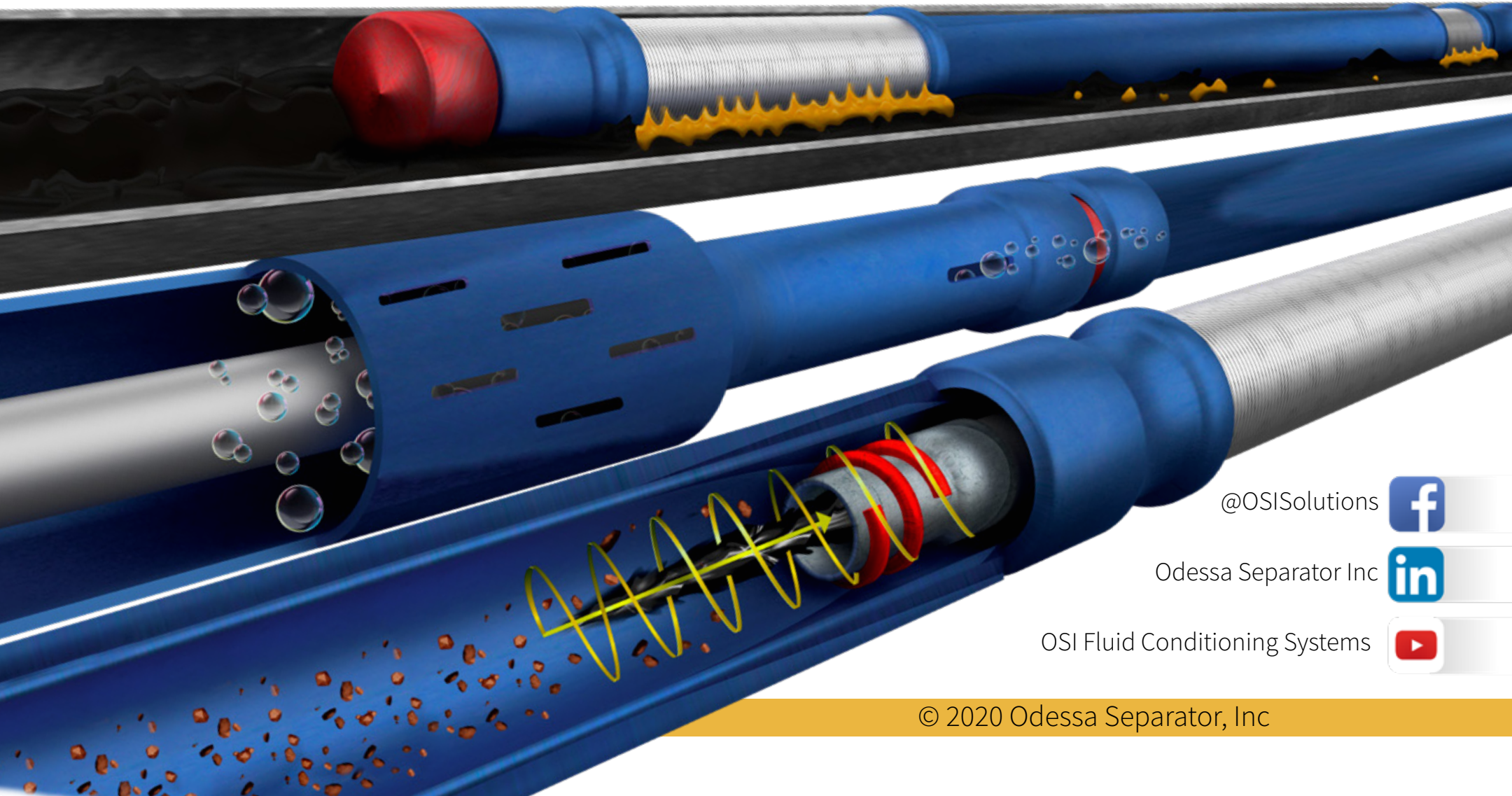

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