



Velocity
Artificial Lift Solutions



Mexico

Colombia

Ecuador

Brazil

Argentina

OFFERING SOLUTIONS FOR OUR CLIENTS IN LATIN AMERICA



WHO WE ARE?

VISION

After 10 years to be recognized as leaders in the Hydrocarbon and Energy Industry, standing out for operational excellence and technological innovation, having corporate responsibility and promoting long-term sustainable development.

MISSION

To provide engineering solutions and services of the highest quality, meeting the needs of our customers with products and technologies at the forefront of the Oil & Gas Industry, guaranteeing reliability, ethics and quality in every aspect of our operations. It thus promotes the development and optimization of wells in the areas of production and completion with innovative solutions, maintaining the highest standards of safety, sustainability and contribution to progress in Latin America.






CORPORATE VALUES



- 1. Safety:** Safety is our priority. We implement rigorous measures to protect our employees, communities, and the environment in which we operate, complying with industry regulations and safety standards.
- 2. Innovation:** We encourage creativity and innovation in search of sustainable and efficient solutions to industry challenges, exploring new technologies and methods to improve operational efficiency.
- 3. Ethics and Integrity:** We act with honesty and transparency in all our operations, maintaining high ethical standards in every decision and action.
- 4. Sustainability:** We are committed to operating sustainably, constantly seeking to reduce our environmental impact and contribute to the development of cleaner energy solutions.
- 5. Commitment to Quality:** We strive for excellence in everything we do, from exploration to distribution, ensuring the delivery of the highest quality products and services that meet the needs and expectations of our customers.
- 6. Social and environmental responsibility:** We are committed to minimizing the environmental impact of our activities and contributing positively to the well-being of the communities in which we operate.
- 7. Teamwork:** We promote collaboration and synergy, both within the company and with partners and collaborators, recognizing that success is achieved through joint effort.
- 8. Operational Efficiency:** We seek efficiency in every aspect of our operations to ensure the responsible use of resources and offer sustainable value over time.
- 9. Professional growth:** We prioritize growth in everything we do in our employees, strengthening skills and personal development.
- 10. Passion:** We are determined to creatively transform our boldest ambitions into reality.



SERVICES



➤ **Engineering** for design, recommendations and optimizations of artificial lift systems.

➤ **Advice and training** for the installation of all our equipment from the brands represented and distributed..

➤ **Technical service** for installation and uninstallation of downhole tools with our solutions.

➤ **Test Sand** sieve analysis and physicochemical analysis of well samples.

➤ **Data collection and analysis** for the monitoring and performance of the implemented systems.

➤ **Installation, Teardown** and electrical maintenance of our solutions.

➤ **Training certifications** for field personnel in the use of our equipment.

➤ **Local inventory availability** with immediate delivery.



REPRESENTATIONS



Distributors for Colombia and Mexico



Distributors for Colombia

ODESSA SEPARATOR INC



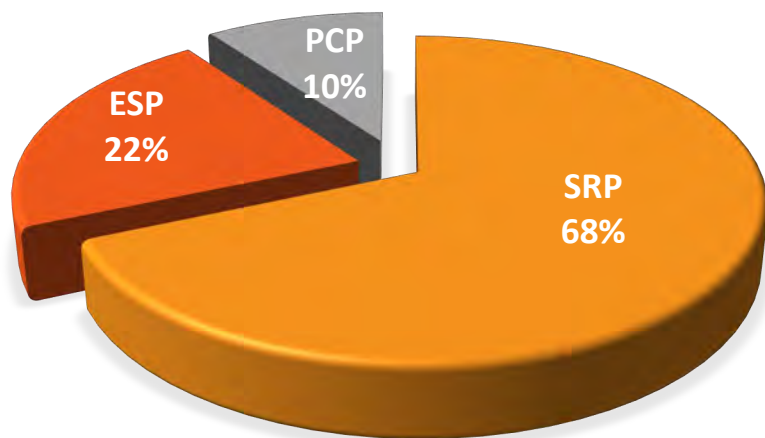
Maximize production with artificial lift solutions for sand control, gas separation, and downhole solid chemical treatment applied in any ALS system, increasing run life and reducing intervention costs.

Product Type	Under the Pump				On top of the Bomb		
	TECHNOLOGY	ESP	SRP	PCP	TECHNOLOGY	ESP	PCP
Sand Control	▪ Tubing Screen / Super Perf	X	X	X	▪ Sand Lift	X	
	▪ Vortex / Desander	X	X	X	▪ Swivel Tool	X	
	▪ Screen Vortex / Desander	X	X	X	▪ PPM Guardian	X	
	▪ Top Bypass Valve	X	X	X			
	▪ Pump Guard Screen / Dip Tube Bypass		X				
Gas Separation	▪ Gas Separator Body / Gas Shield / Slotted Shield	X	X	X	Components		
	▪ Combination Tool	X	X	X	No – Go Catcher	X	
	▪ G – Force Packerless	X	X	X	Bumper Spring	X	
	▪ Gas Vent / Gas Vent TAC		X		Hex Bull Plug	X	
	▪ ESP Guardian Shield	X					
	▪ ESP Vortex Regulator	X					
	▪ Chamber Type o Packer Type Gas Separator			X			
	▪ Surge Valve	X	X	X			
Chemical Treatment	▪ Chem Sticks	X	X	X			
	▪ Chem Screen with Shut Off Valve	X	X	X			
	▪ Chem Filter Tool 3 in 1		X				
	▪ Quick Release	X	X	X			



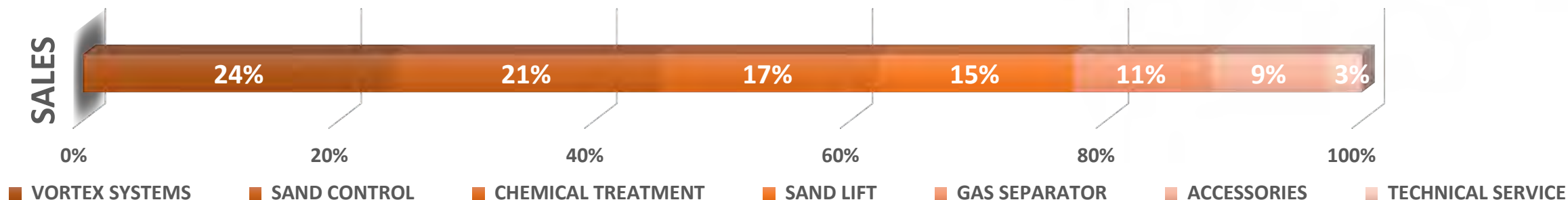


EXPERIENCE IN COLOMBIA AND MEXICO



- + 8 years with applications in Colombia.
- + 3 years with applications in Mexico.
- + 22 Integral Offshore Sand Control Systems.
- + 2200 applications in Colombia onshore.

ALS	APPLICATIONS
SRP	1687
ESP	532
PCP	245
Total	2464





SAND CONTROL RESULTS



CUSTOMER	TYPE OF TECHNOLOGY	PROBLEM	ALS	FLOW RANGE (BFPD)	API	INSTALLED WELLS (EA)	BS&W	INTAKE PUMP DEPTH	TUBING JOINT IN DOWNHOLE (EA)	SAND DISTRIBUTION (MESH)	PREVIOUS RUN LIFE (DAYS)	RUN LIFE OR RUN TIME AFTER IMPLEMENTATION (DAYS)
NEW GRANADA ENERGY	SAND HOMOGENIZER SYSTEMS	High presence of sand due to high water injection	ESP	1600 - 12000	32	14	90 % - 98 %	4500 - 5900	2 - 3	120 - 325	211	1101
ECOPETROL GERENCIA DEL RIO	SAND CONTROL SCREEN + VORTEX DESANDER	Criticality of wells with a high presence of medium to fine sand	ESP	300 - 1200	24	28	1 % - 75 %	5900 - 7200	6 - 8	35 - 120	167	1119
GRAN TIERRA ENERGY	SAND LIFT	High sand production > 3000 ppm between fine and very fine	ESP	400 - 1100	12	101	1 % - 40 %	6600 - 7500	N/A	120 - 325	137	936
BALAM - EK (PEMEX) MEXICO (OFFSHORE)	SAND HOMOGENIZER SYSTEMS + VORTEX DESANDER + SAND LIFT	High presence of sand of medium to fine	ESP	1750 - 6500	27	22	0 % - 5 %	10500 - 14100	10	50 - 140	180	613



GUATIQUIA WELL ESP (ECOPETROL) GAS SEPARATION SUCCESS CASE



PAPER SPE-184213-MS

ACHIEVEMENTS

Greater gas separation result in Colombia



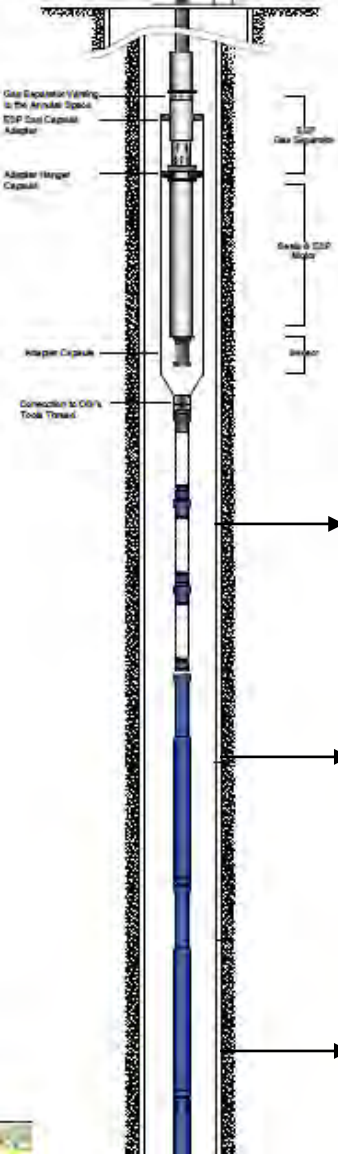
Challenge to separate 2 million ft³ of gas



Separation results of 1.5 million ft³ of gas

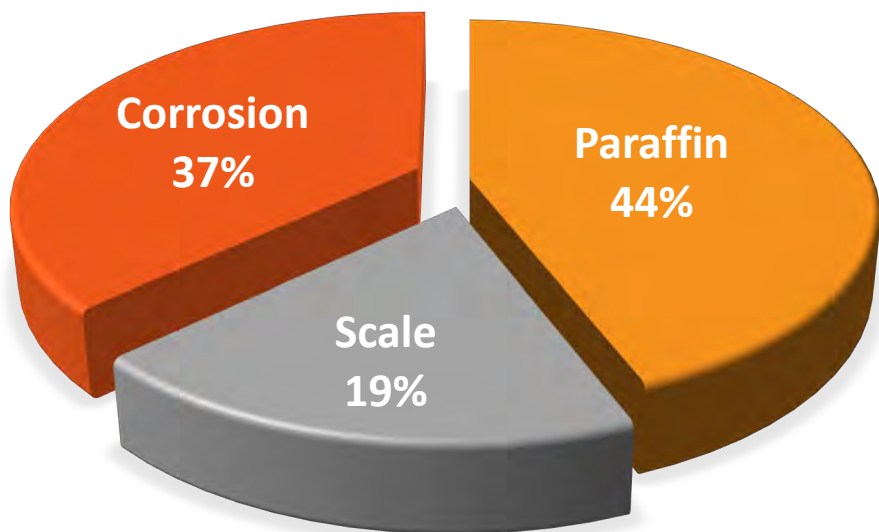


Went from 90 days of Run Life to 365 days





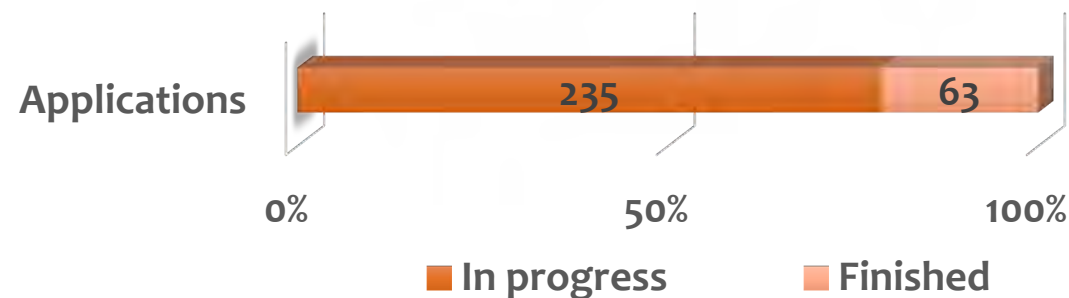
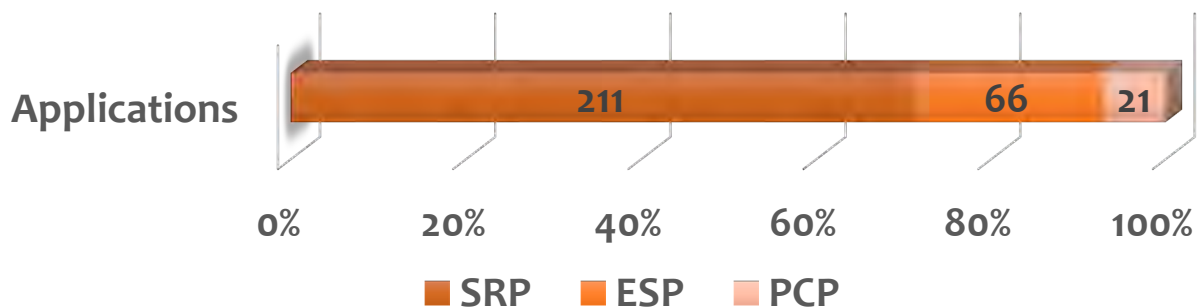
CHEMICAL TREATMENT APPLICATIONS



ACHIEVEMENTS

More than 10,000.00 ft of chemistry installed in downhole.

- ✓ 370 – 1686 days Run Time.
- ✓ 604 days average run life.
- ✓ 168 % - 700 % of the initial design.



ESP SAND LIFT



Velocity's ESP SAND LIFT provides extended ESP run times through improved downhole sand management.

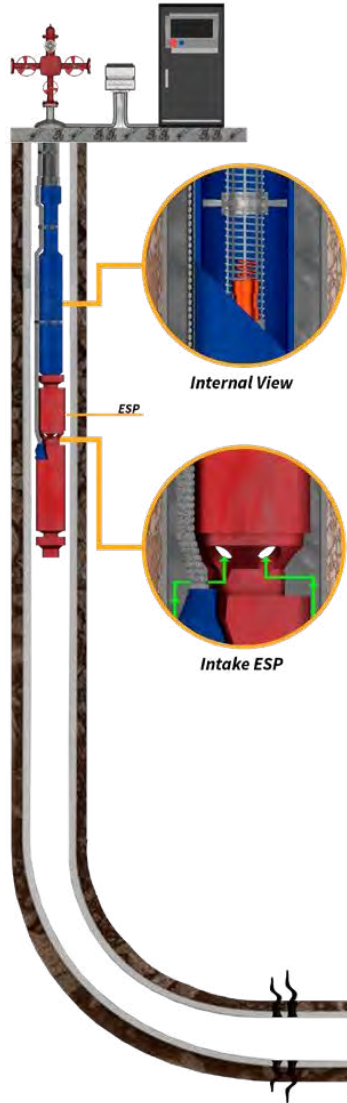
It is installed above the ESP discharge, where, upon start-up, the unique Velocity ALS dart, sand-breaker uses differential pressure to push fluid and entrained solids through tubular ports in one flow path, to the surface.

PROVIDES SIGNIFICANTLY LONGER ESP RUN TIMES

ADVANTAGES

- Prevent workovers due to sand failures.
- Extends run times by regulating the rate of falling sand.
- Backflush operations are carried out easily.
- Housing is highly sand-resistant.

DESCRIPTION	LIFTING NECK OD (in)	BODY OD (in)	CONNECTION TOP	CONNECTION BOTTOM	CAPACITY OF THE CAVITY (in ³)	TOTAL OPEN AREA (in ²)
SERIES 350	2-7/8	3.5	2-7/8 EUE BOX	2-7/8 EUE PIN	1453. 6	1453. 6
SERIES 400	2-7/8	4	2-7/8 EUE BOX	2-7/8 EUE PIN	2060. 5	2060. 5
SERIES 450	2-7/8	4.5	2-7/8 EUE BOX	2-7/8 EUE PIN	2773. 1	2773. 1
SERIES 550	3-1/2	5.5	3-1/2 EUE BOX	3-1/2 EUE PIN	4454. 4	4454. 4



VELOCITYALS.COM

ESP VORTEX DESANDER



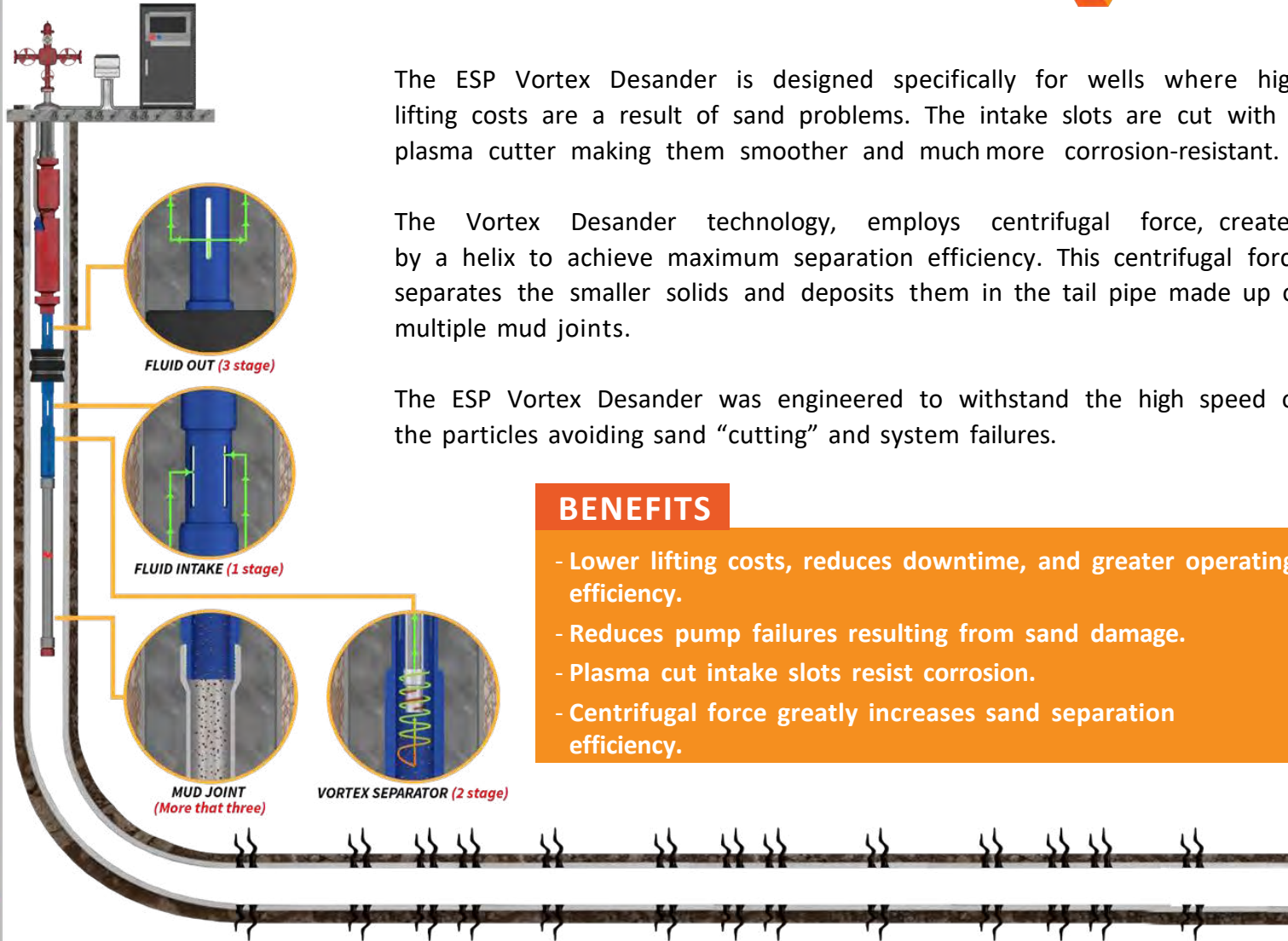
The ESP Vortex Desander is designed specifically for wells where high lifting costs are a result of sand problems. The intake slots are cut with a plasma cutter making them smoother and much more corrosion-resistant.

The Vortex Desander technology, employs centrifugal force, created by a helix to achieve maximum separation efficiency. This centrifugal force separates the smaller solids and deposits them in the tail pipe made up of multiple mud joints.

The ESP Vortex Desander was engineered to withstand the high speed of the particles avoiding sand "cutting" and system failures.

BENEFITS

- Lower lifting costs, reduces downtime, and greater operating efficiency.
- Reduces pump failures resulting from sand damage.
- Plasma cut intake slots resist corrosion.
- Centrifugal force greatly increases sand separation efficiency.



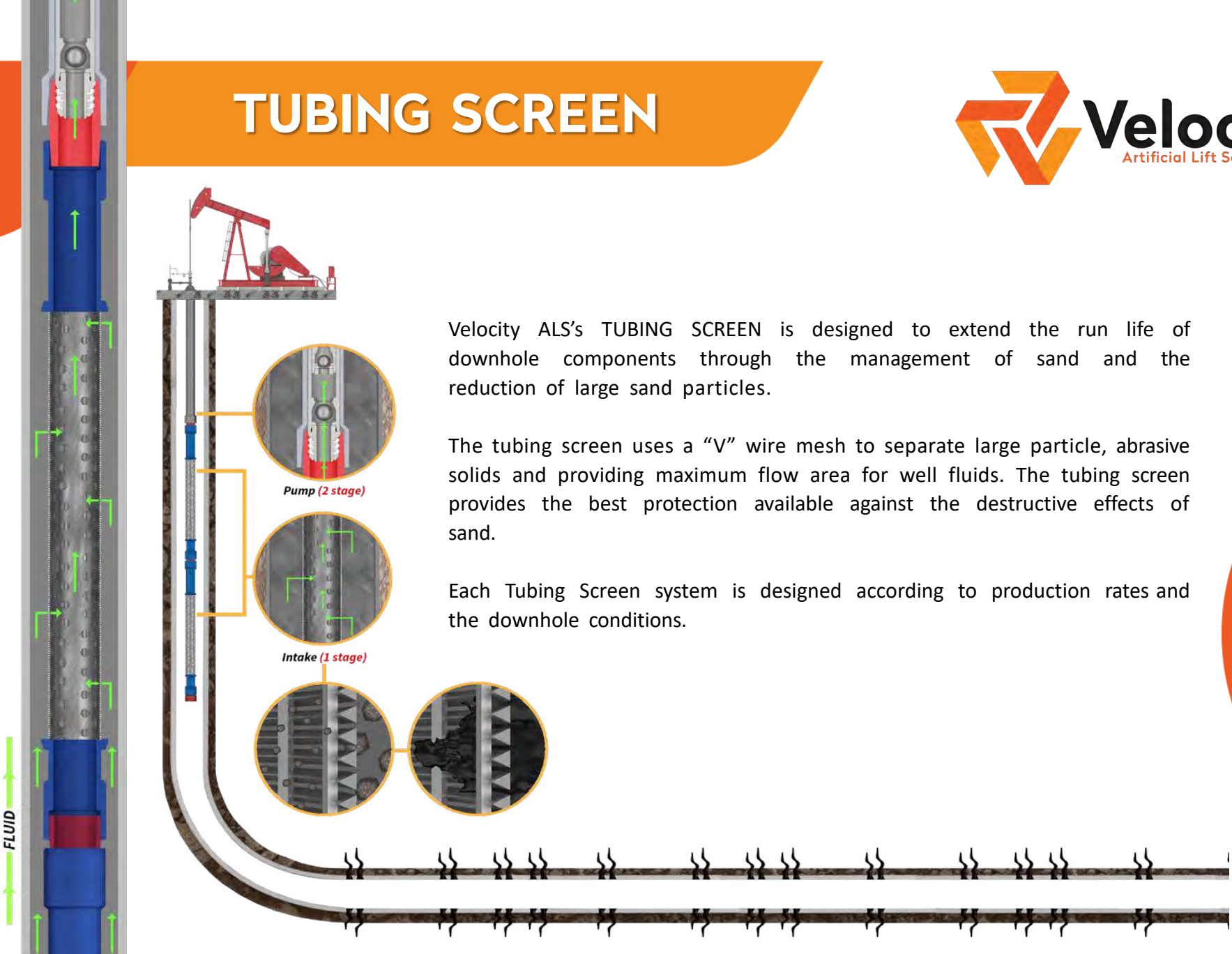
TUBING SCREEN



Velocity ALS's TUBING SCREEN is designed to extend the run life of downhole components through the management of sand and the reduction of large sand particles.

The tubing screen uses a "V" wire mesh to separate large particle, abrasive solids and providing maximum flow area for well fluids. The tubing screen provides the best protection available against the destructive effects of sand.

Each Tubing Screen system is designed according to production rates and the downhole conditions.



BENEFITS

- Breaks up large particle sand slugs.
- Extends pumping system run times.
- Reduces sand related equipment failures.
- Rugged construction resists corrosion and abrasion.

ESP TOP BYPASS VALVE



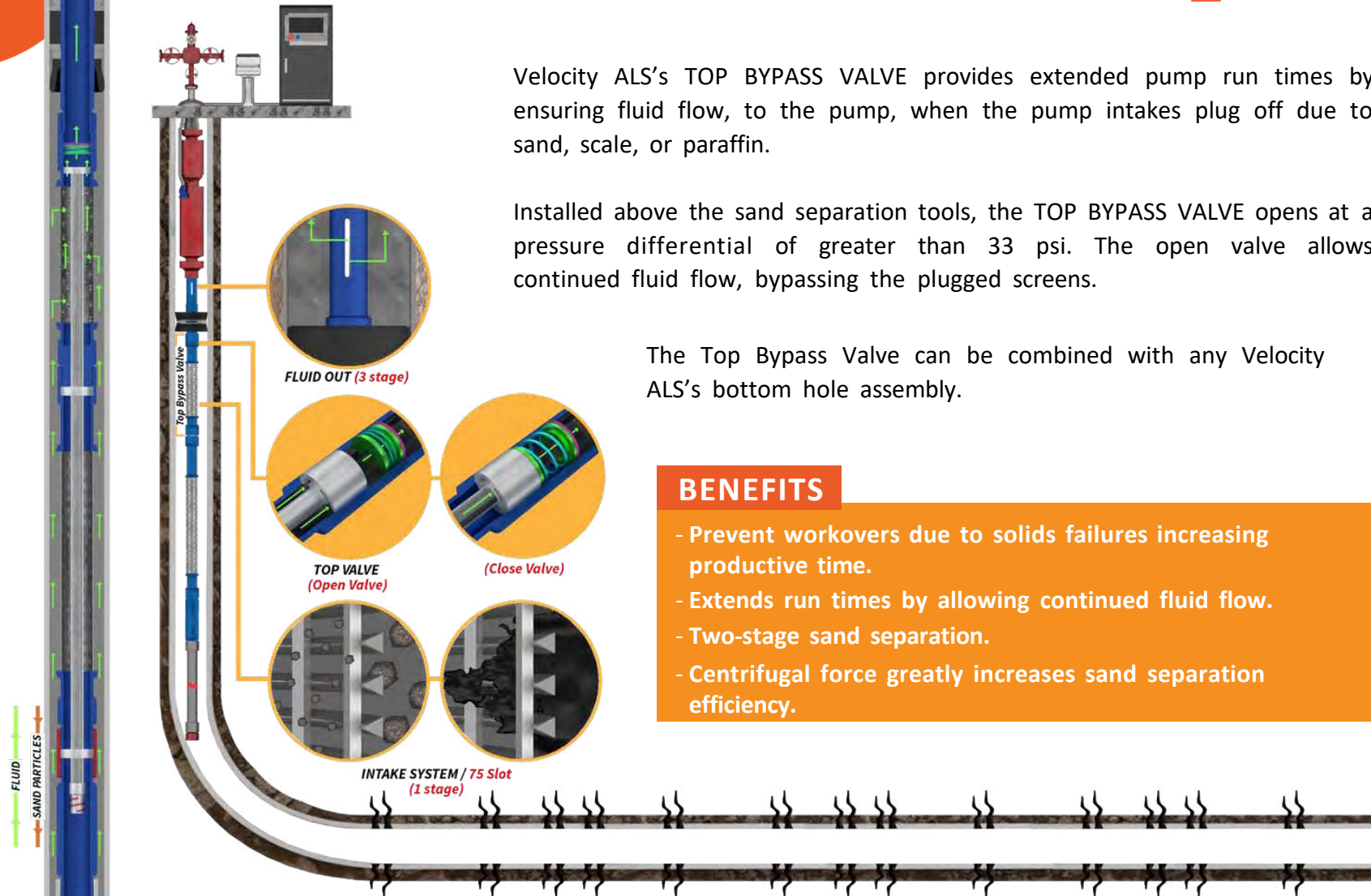
Velocity ALS's TOP BYPASS VALVE provides extended pump run times by ensuring fluid flow, to the pump, when the pump intakes plug off due to sand, scale, or paraffin.

Installed above the sand separation tools, the TOP BYPASS VALVE opens at a pressure differential of greater than 33 psi. The open valve allows continued fluid flow, bypassing the plugged screens.

The Top Bypass Valve can be combined with any Velocity ALS's bottom hole assembly.

BENEFITS

- Prevent workovers due to solids failures increasing productive time.
- Extends run times by allowing continued fluid flow.
- Two-stage sand separation.
- Centrifugal force greatly increases sand separation efficiency.



ESP SCREEN VORTEX DESANDER

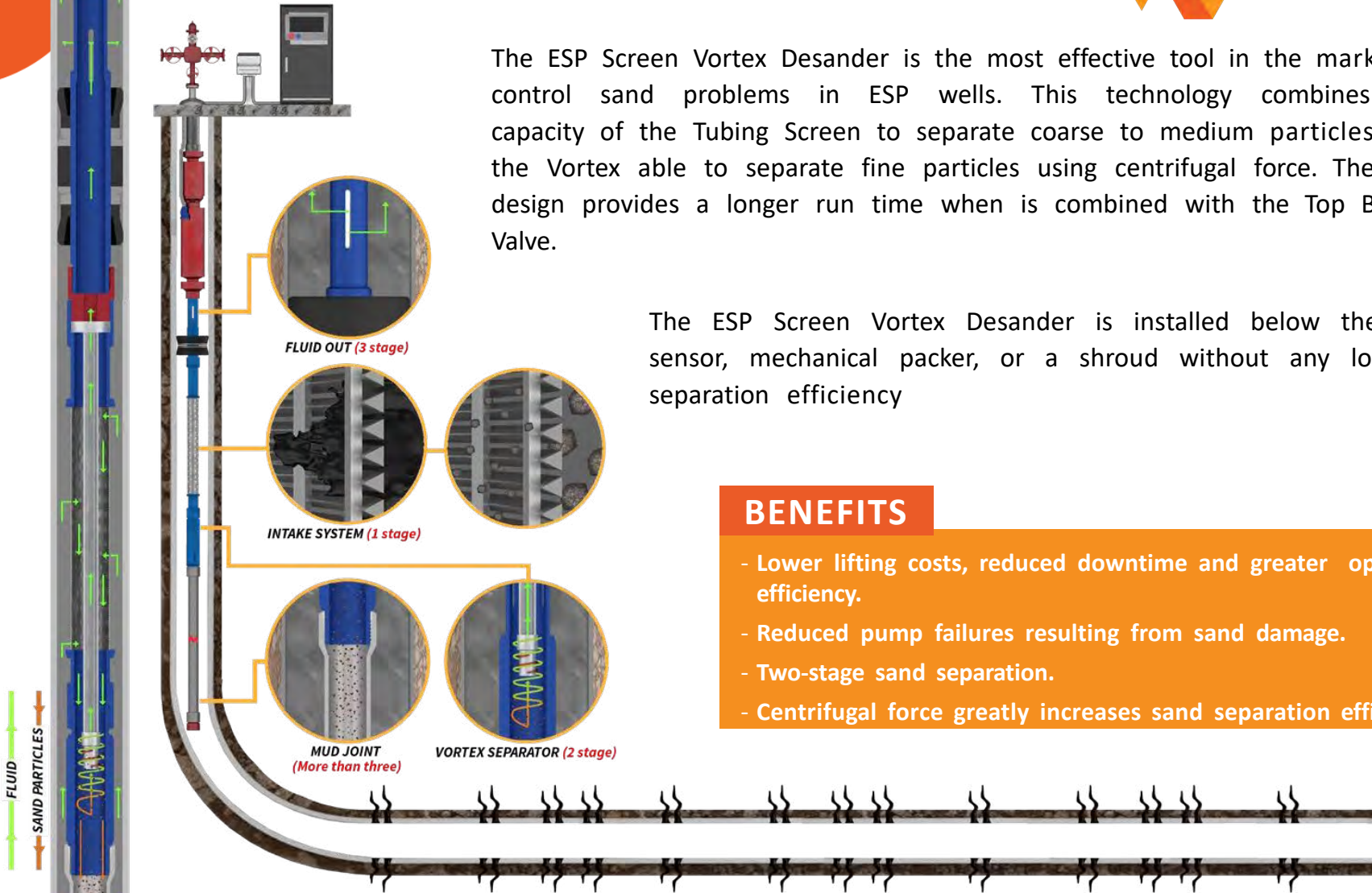


The ESP Screen Vortex Desander is the most effective tool in the market to control sand problems in ESP wells. This technology combines the capacity of the Tubing Screen to separate coarse to medium particles with the Vortex able to separate fine particles using centrifugal force. The new design provides a longer run time when is combined with the Top Bypass Valve.

The ESP Screen Vortex Desander is installed below the ESP sensor, mechanical packer, or a shroud without any loss of separation efficiency

BENEFITS

- Lower lifting costs, reduced downtime and greater operating efficiency.
- Reduced pump failures resulting from sand damage.
- Two-stage sand separation.
- Centrifugal force greatly increases sand separation efficiency.



ESP ULTRAMESH



Introducing the latest technology from Velocity ALS, ESP UltraMesh, which is designed specifically for wells with severe sand-related failures.

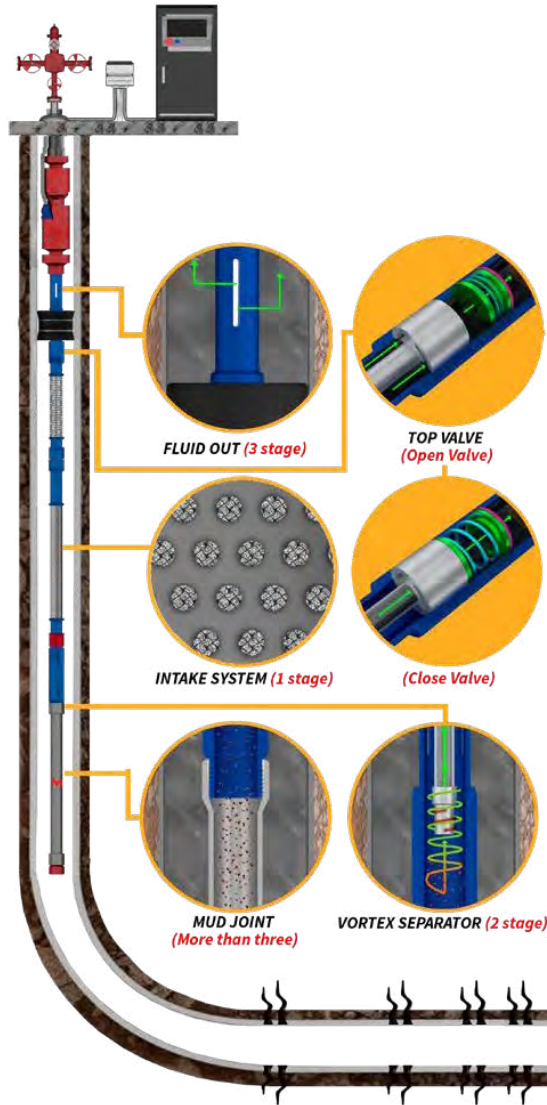
The ESP UltraMesh is constructed using a base pipe, filter media, and protective shroud forming the Multi-Layer Mesh that breaks sand slugs and retains abrasive coarser and finer sand sizes, whilst maintaining high permeability.

The ESP UltraMesh has a bypass valve at the top, fluid is ensured in the pump under challenging well conditions.

In addition, ESP's Dual Flow technology allows The ESP UltraMesh to be combined with a Desander if the operator wants.

BENEFITS

- Breaks Sand Slugs and retains coarser and finer sand sizes.
- Maintains high open area and permeability.
- Extends ESP and Rod Pump run times by reducing sand related equipment failures.
- Rugged construction to resist corrosion and abrasion.



ESP PMM GUARDIAN



The ESP PMM Guardian is an exceptional solution that completely transforms safety and operational efficiency during the installation or pulling of the Electrical Submersible Pump (ESP). Its robust protective barriers eliminate the need for installing blanking plugs while running the Permanent Magnet Motor (PMM), resulting in substantial reductions in rig time and significant improvements in Return on Investment (ROI).

Not to mention, it significantly reduces the risk of field operations, prioritizing the safety of personnel in the field.

In addition, the reduction of certain operations contributes to a considerable decrease in both Capital Expenditure (Capex) and Operational Expenditure (Opex), making it an unbeatable, cost-effective, and time-saving tool for ESP installations.

SIZE in	OD in	ID in	DISC RATING ABOVE psi	DISC RATING BELOW psi	TEMPERATURE RATING °F
2.875	3.460	2.441	1,000	10,000	302

ESP PACKER TYPE GAS SEPARATOR

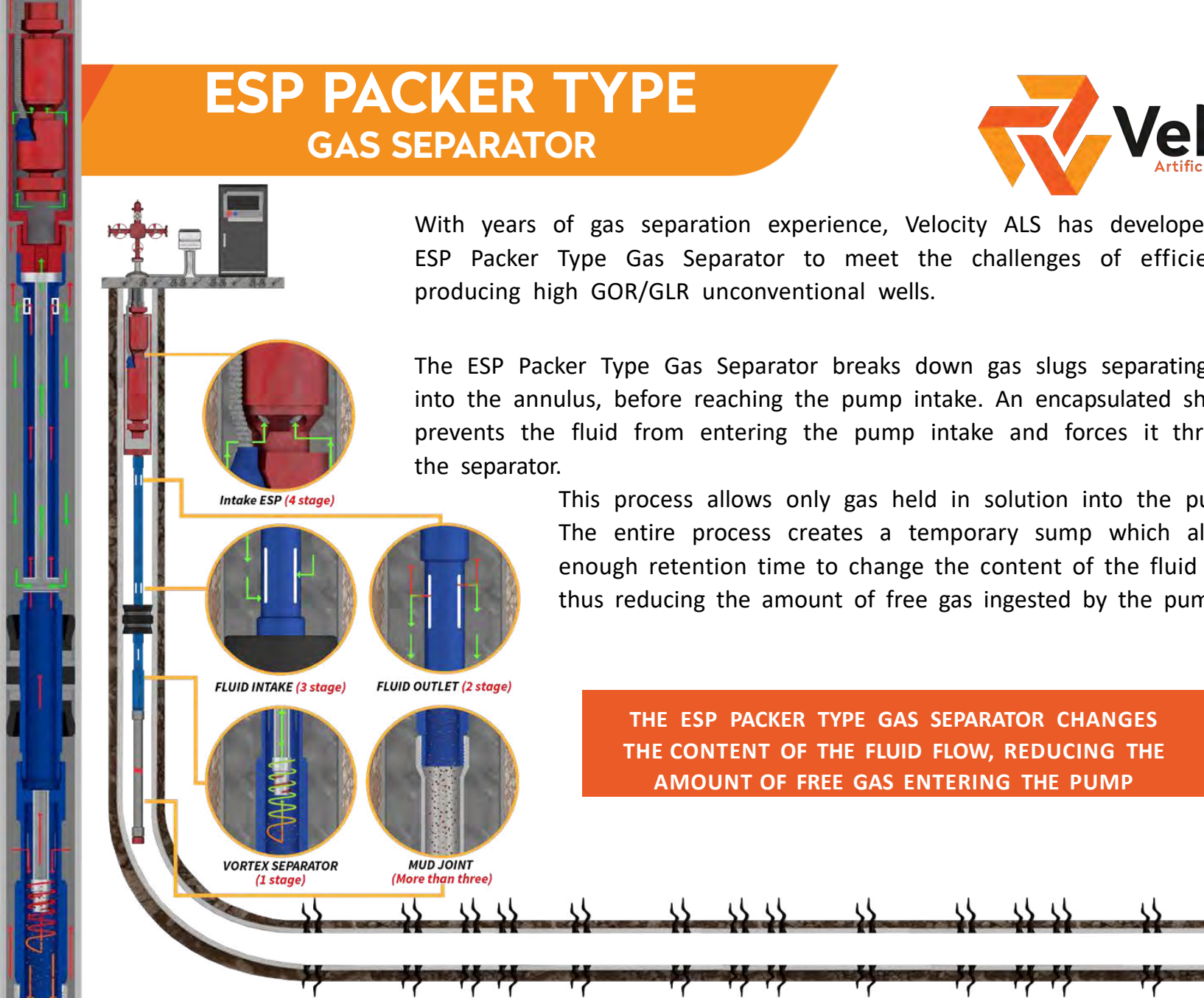


With years of gas separation experience, Velocity ALS has developed an ESP Packer Type Gas Separator to meet the challenges of efficiently producing high GOR/GLR unconventional wells.

The ESP Packer Type Gas Separator breaks down gas slugs separating gas into the annulus, before reaching the pump intake. An encapsulated shroud prevents the fluid from entering the pump intake and forces it through the separator.

This process allows only gas held in solution into the pump. The entire process creates a temporary sump which allows enough retention time to change the content of the fluid flow thus reducing the amount of free gas ingested by the pump.

**THE ESP PACKER TYPE GAS SEPARATOR CHANGES
THE CONTENT OF THE FLUID FLOW, REDUCING THE
AMOUNT OF FREE GAS ENTERING THE PUMP**



ESP G-FORCE

PACKER TYPE GAS SEPARATOR



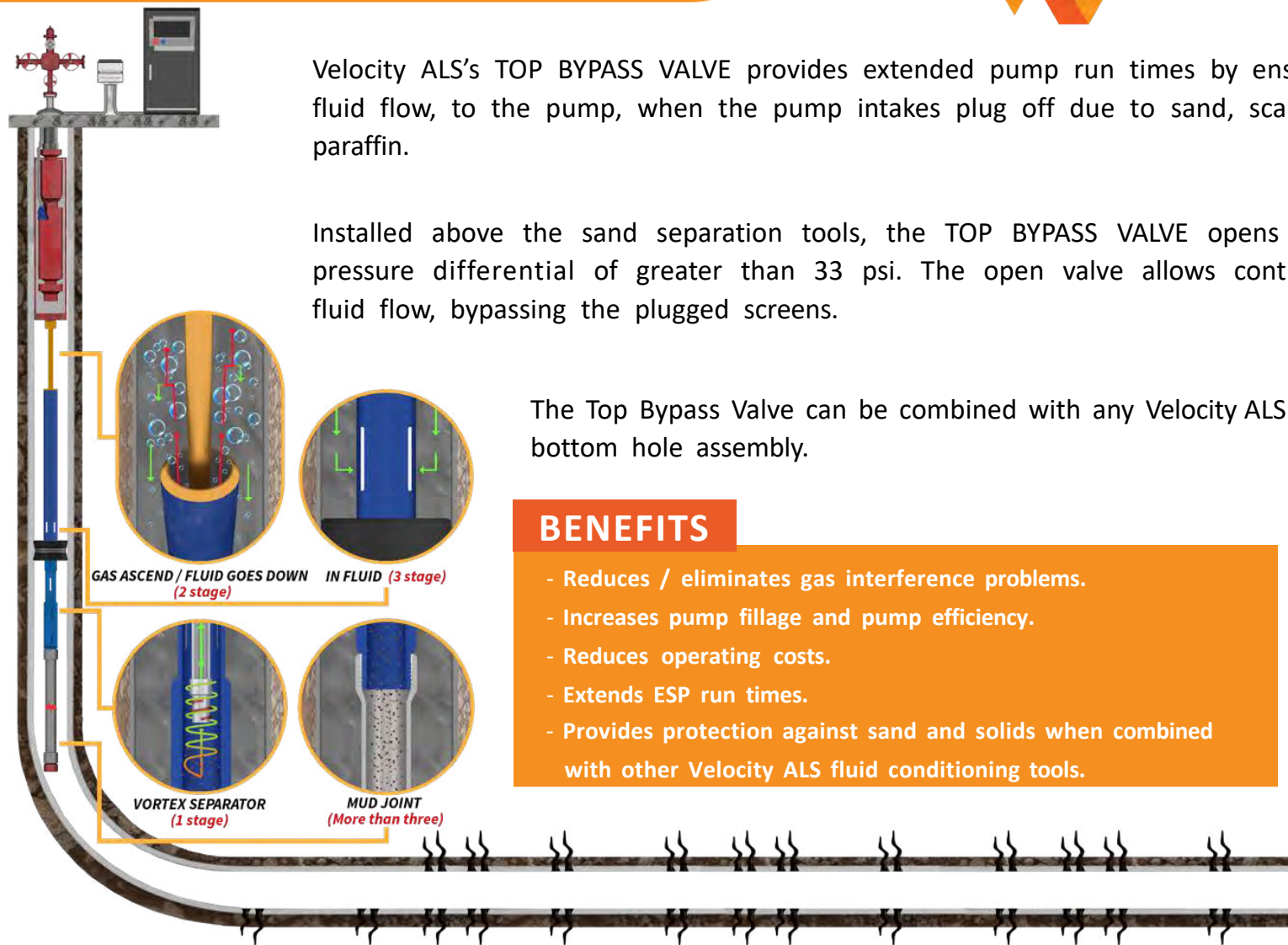
Velocity ALS's TOP BYPASS VALVE provides extended pump run times by ensuring fluid flow, to the pump, when the pump intakes plug off due to sand, scale, or paraffin.

Installed above the sand separation tools, the TOP BYPASS VALVE opens at a pressure differential of greater than 33 psi. The open valve allows continued fluid flow, bypassing the plugged screens.

The Top Bypass Valve can be combined with any Velocity ALS bottom hole assembly.

BENEFITS

- Reduces / eliminates gas interference problems.
- Increases pump fillage and pump efficiency.
- Reduces operating costs.
- Extends ESP run times.
- Provides protection against sand and solids when combined with other Velocity ALS fluid conditioning tools.



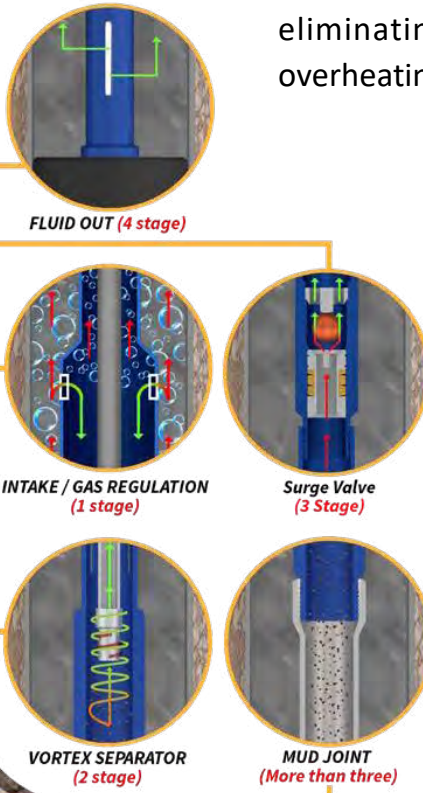
ESP VORTEX REGULATOR



Velocity ALS's ESP VORTEX REGULATOR is a new technology engineered to separate sand while regulating gas slugs.

The ESP Vortex Regulator delivers clean, gas free fluid to the ESP, eliminating mechanical damage to the pump and downtime due to overheating and gas lock.

The ESP Vortex Regulator installs easily and has a broad range of applications.



BENEFITS

- Reduces or eliminates gas interference.
- Provides effective sand separation.
- Stabilizes pump operating parameters: vibration, frequency, voltage and motor current.
- Increases pumping system efficiency.
- Reduces operating expenses.

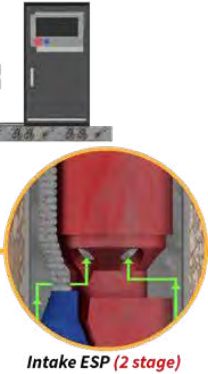
ESP SURGE VALVE



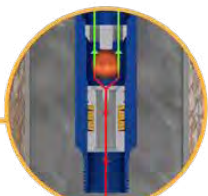
A common problem in horizontal well production is erratic fluid surging. A result of these slugs is inefficient pumping and flowback into the formation. Velocity ALS has engineered a tool that turns the energy generated by surges into an advantage for the producer.

The Velocity ALS ESP Surge Valve allows a fluid surge to flow one way through the valve then holds the surge above the valve, decreasing formation back pressure and increasing production.

ESP Surge Valve improves well profitability in both horizontal and vertical orientations. The system is applicable to many different lift applications, including electric submersible pump (ESP), rod pump, and gas lift.



Intake ESP (2 stage)



SURGE VALE (1 stage)
Gas Separation

BENEFITS

- Helps prevent gas interference.
- Reduces pump shutdowns.
- Breaks gas slugs and prevents surge production.

BENEFITS

- Allows chemical injection below the pump.
- Allows for hot oil treating above the packer.
- Allows testing the packer to assure that it is properly set.

TECHNICAL SPECIFICATIONS

Sizes	Collar (in)	Length
	OD	
2-7/8"	4	23
3-1/2"	4.500	23

ESP GUARDIAN SHIELD



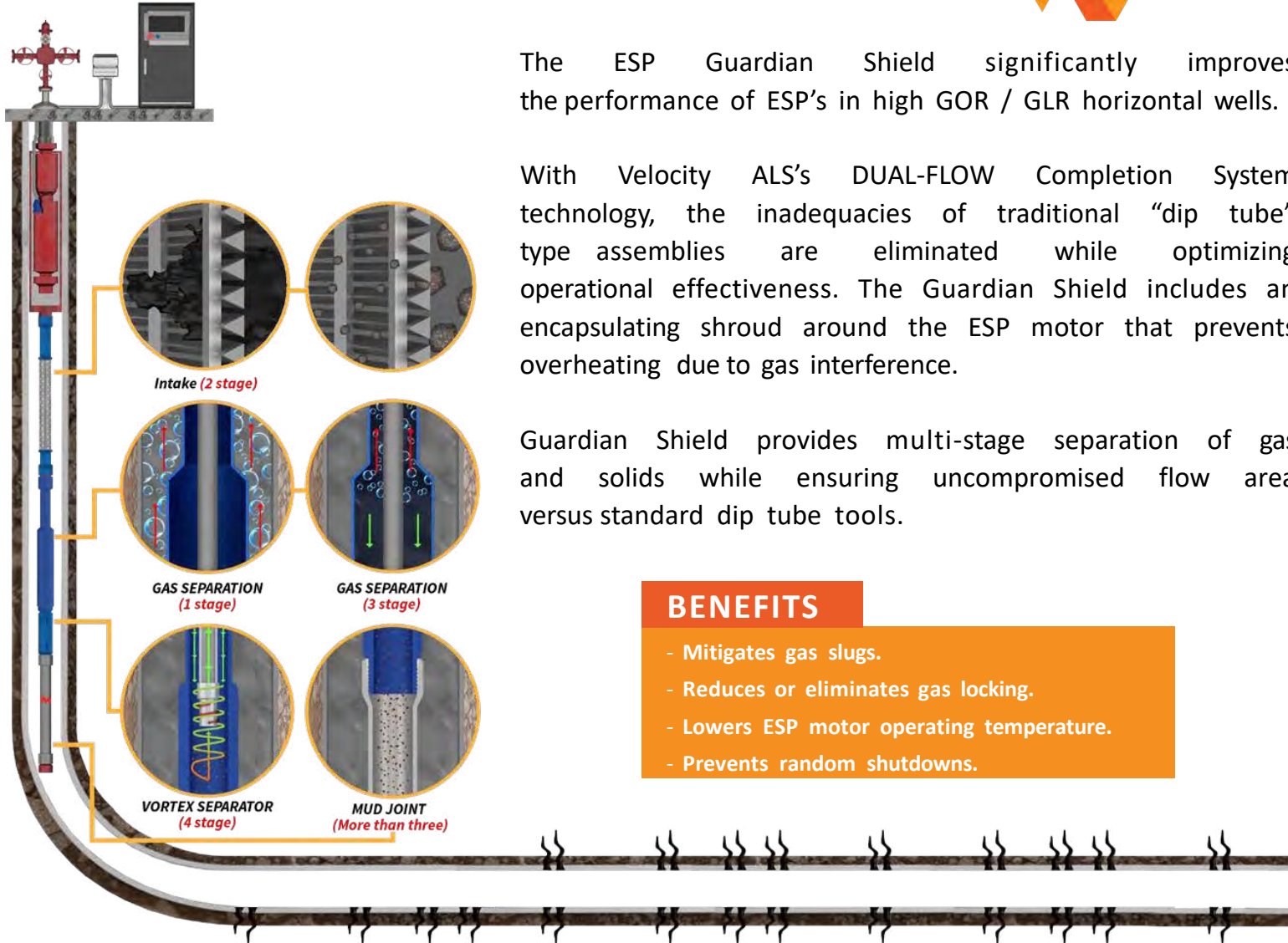
The ESP Guardian Shield significantly improves the performance of ESP's in high GOR / GLR horizontal wells.

With Velocity ALS's DUAL-FLOW Completion System technology, the inadequacies of traditional "dip tube" type assemblies are eliminated while optimizing operational effectiveness. The Guardian Shield includes an encapsulating shroud around the ESP motor that prevents overheating due to gas interference.

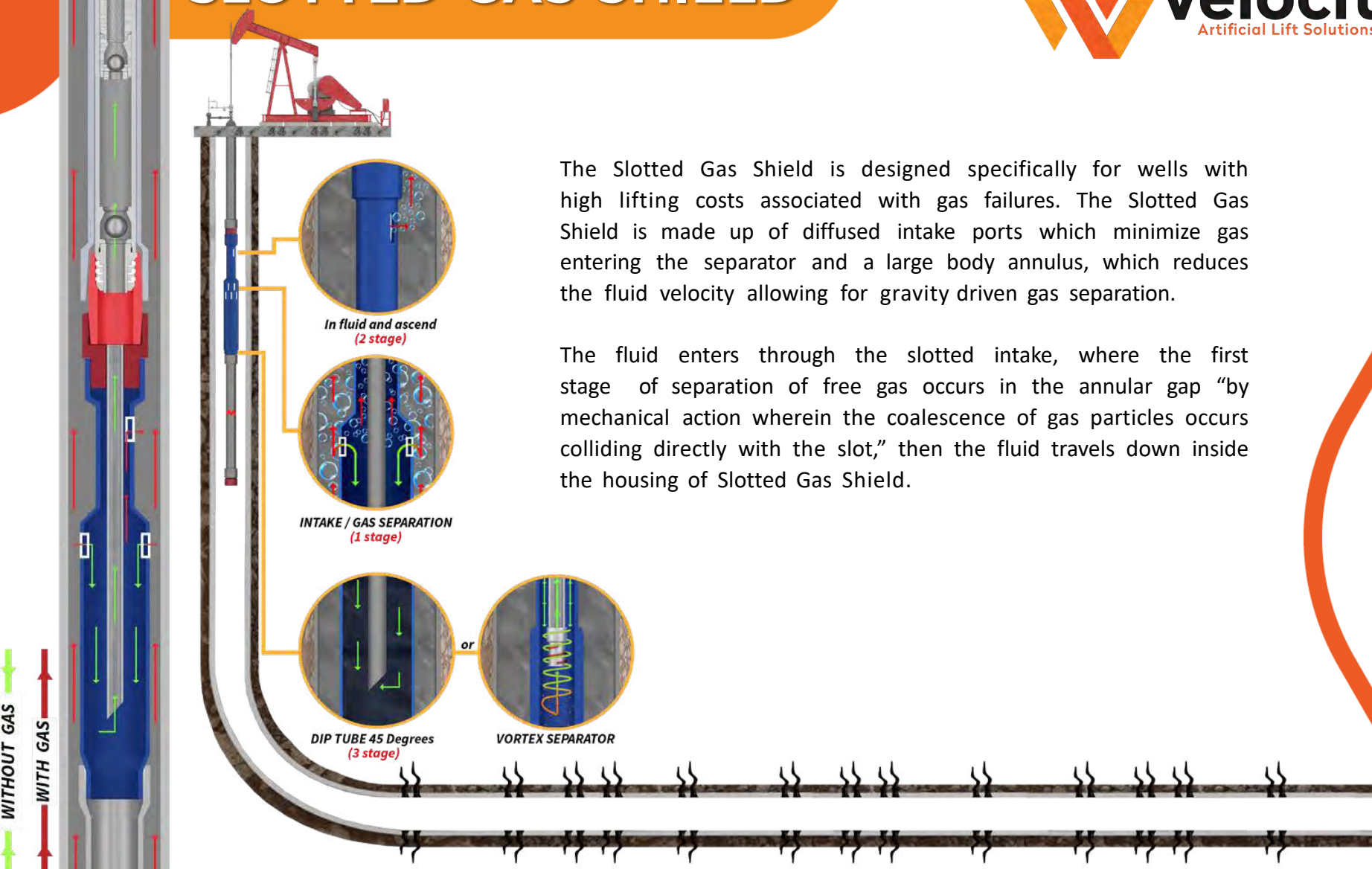
Guardian Shield provides multi-stage separation of gas and solids while ensuring uncompromised flow area versus standard dip tube tools.

BENEFITS

- Mitigates gas slugs.
- Reduces or eliminates gas locking.
- Lowers ESP motor operating temperature.
- Prevents random shutdowns.



SLOTTED GAS SHIELD



The Slotted Gas Shield is designed specifically for wells with high lifting costs associated with gas failures. The Slotted Gas Shield is made up of diffused intake ports which minimize gas entering the separator and a large body annulus, which reduces the fluid velocity allowing for gravity driven gas separation.

The fluid enters through the slotted intake, where the first stage of separation of free gas occurs in the annular gap “by mechanical action wherein the coalescence of gas particles occurs colliding directly with the slot,” then the fluid travels down inside the housing of Slotted Gas Shield.

BENEFITS

- Mitigates the gas slugs.
- Reduces or Eliminates the Gas locking.
- Multiple stages of gas separation.
- Allows sand

CHEM SCREEN WITH SHUT OFF VALVE



The Chem Screen is a significant improvement over traditional chemical treating methods. Velocity ALS's proprietary, micro-encapsulation technology allows the most effective oilfield treatment chemistry to be put into solid stick form, placed into specifically engineered tools and installed below the pump intake.

With the treating chemicals placed downhole, the activation and dispersal of the chemicals occur much faster and more efficiently. Where multiple screens are used, a SHUT OFF VALVE between each section prevents premature dispersal. The treatment process is continual, over a longer period ensuring a more cost-effective treatment program.

The Chem Screen is engineered for durability so that, in most cases, it can be refilled when needed.

BENEFITS

- Provides chemical treatment below a packer.
- Treatment from downhole up.
- Slow, continual dispersal.
- Serviceable rugged construction.

CHEM SCREEN WITH SHUT OFF VALVE



CHEM SCREEN

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With the treating chemicals placed downhole, the activation and dispersal of the chemicals occur much faster and more efficiently. The treatment process is continual, over a longer period ensuring a more cost-effective treatment program. The Chem Screen is engineered for durability so that.

- **Top Chem Screen** Vacuum control system on the treatment to be implemented. It allows solid chem sticks to descend and disperse the product more easily.
- **Center Chem Screen** Storage control system on the treatment to be implemented. Allows solid chem sticks to remain long-lived throughout the Run Time of the well.
- **Bottom Chem Screen** Dispersion control system on the treatment to be implemented. It allows solid chem sticks to disperse properly.

Vacuum Area

Storage Area

Dispersion Area



J55 Pipe

Plastic Coated



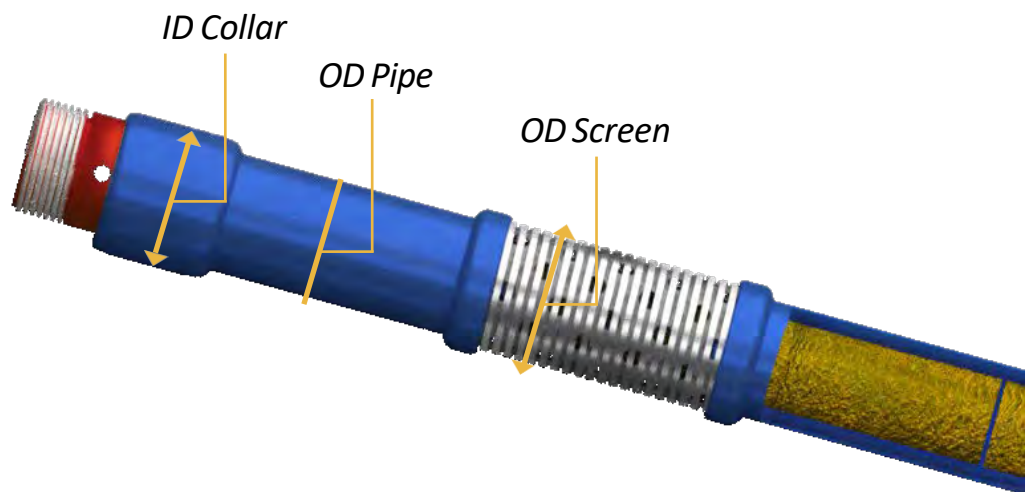
Dispersion
Slow and
Controlled



Liberation
Constant
of Chemistry



TECHNICAL SPECIFICATIONS



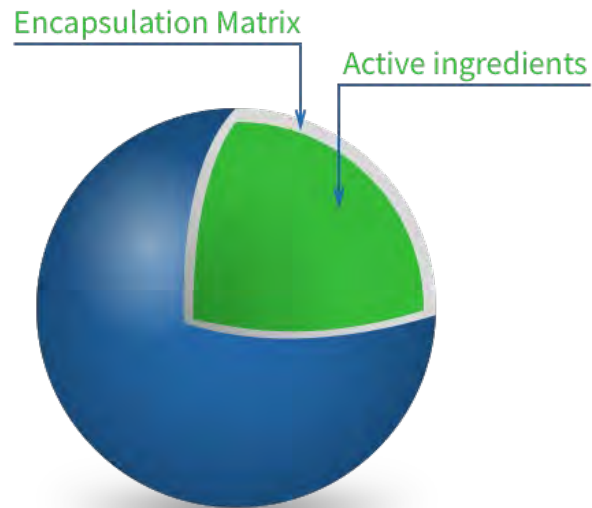
Sizes (in)	Pipe (in)		Screen (in)	Collar (in)	
	OD	ID	OD	OD	ID
2-3/8	2.375	1.941	2.875	3.063	2.375
2-7/8	2.875	2.441	3.370	3.668	2.875
3-1/2	3.500	3.066	3.940	4.500	3.500
4-1/2	4.500	3.958	4.852	5.563	4.500

Characteristics:

- Available in any size.
- Adaptable to well productivity.
- Duration of treatment required.
- Design based on the physicochemical parameters of the production fluid or the failure history for each well or application.

MICRO-ENCAPSULATION METHOD

Homogeneous Matrix



Processes that allow to create a membrane that stop a substance to be released until is necessary for some specific function.



**Matrix microencapsulation
type 1
Quick Release**



**Matrix microencapsulation type 2
Slow Release**

**New matrix used for
longer run life**

INHIBITORS

Scale Inhibitor



A formulated blend of phosphonate, high molecular weight polymers, phosphoric acid, phosphonic acid, phosphonates and orthophosphates to inhibit scale formation in wide spectrum temperature and pressure environments. Iron chelators (THPC — Tetrakis hydroxyl methyl phosphonium chloride + THPS — Tetrakis hydroxyl methyl phosphonium sulfate) have also been added to sequester metal compounds and promote film persistency for the active corrosion inhibitors. Product formulated to offer the best performance in the presence of high iron levels and TDS conditions. Laboratory tests with saturation indices of > 2.3 for calcite, barite and siderite have shown 100% inhibition.

Corrosion Inhibitor



A formulated blend of amines, amides, high molecular weight Imidazolines and surfactants to passivate corrosion issues. It provides film persistency and protection in turbulent environments and protection in the presence of acid gases. This formulation has also been modified with the addition of an alkyl pyridine coco quat and a triazine based scavenger combination for high acid gas ($\text{CO}_2, \text{H}_2\text{S}$) environments.

BENEFITS

Chemical treatment is performed directly from downhole to the surface

Slow Dispersion of Chemical Treatment Designed to Ensure Longevity

Increasing System RUN LIFE Time



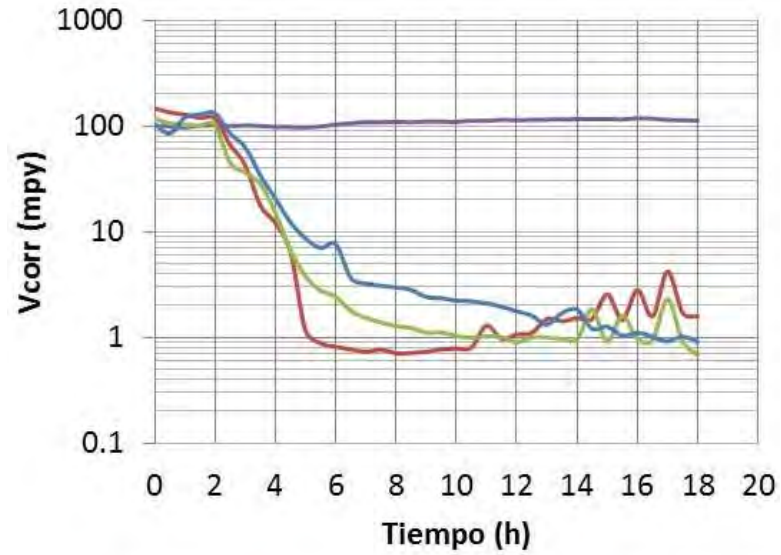
Compatible with the Capsule system currently implemented

We take the best products as a result of the tests carried out with the authority in charge and endorsed

Cost-effective, because it reduces the costs associated with the operation, since the product is secured downhole

LAB TEST RESULTS

Corrosion Inhibitor

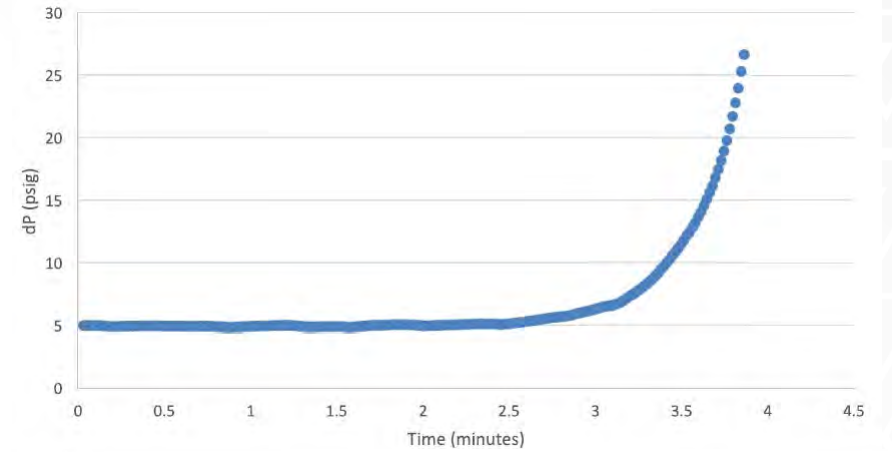


— BLANCO — 100 ppm — 200 ppm — 400 ppm

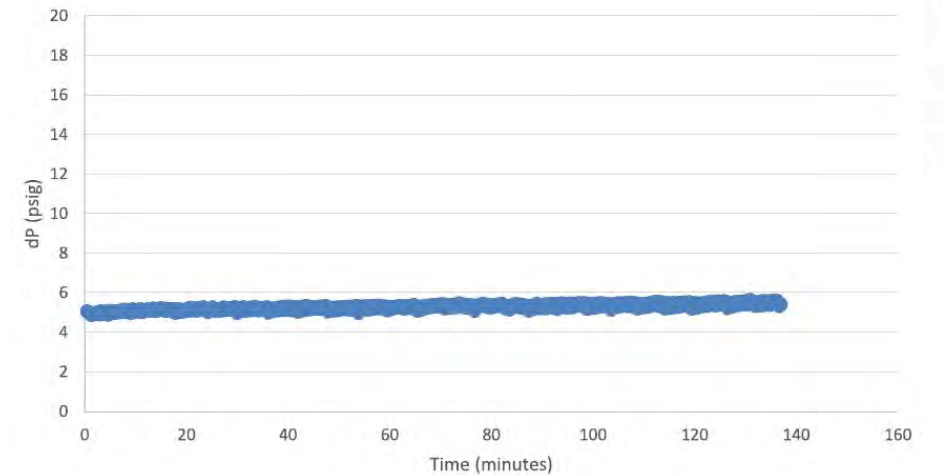


Scale Inhibitor

Blank Sample – 0 mg/LSI



Mid Con – 50 mg/LSI

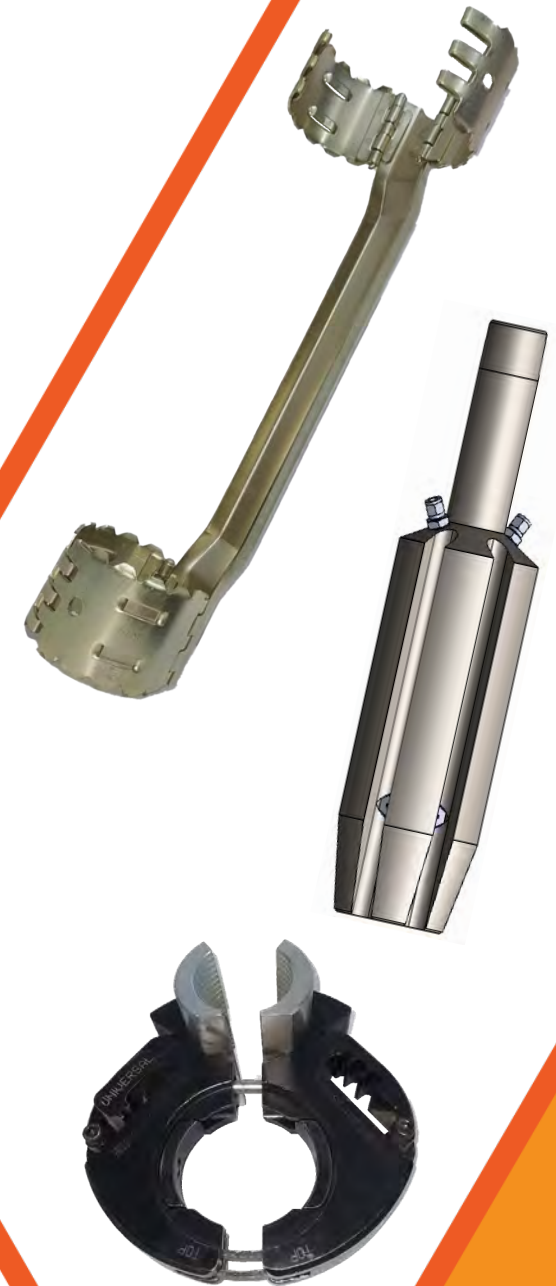


DRAGON ARTIFICIAL LIFT SYSTEMS



Improved designs of technologies and accessories in ESP Systems.

Product Type	Specs	
Stamped Cable Protectors	• Over Coupling Protector	• Customized to the size of the cable and production tubing.
	• Mid Joint	• Customized to the size of the cable and production tubing.
Cast Cable Protectors	• Cast Cable Protector	• Customized to the size of the cable and production tubing.
Y-tool Systems	• Y-tool modular	• Modular systems, easy replacement of parts and equipment assemblies with Bypass accessories.
	• Y-tool monobloc	• Machined monobloc system with advantages over cast or modular systems with Bypass accessories.
	• Blanking Plug	• High flow system.
	• Logging Plug	• Adaptable to different seals.
ESP Systems	• Clamps	• With different adaptable designs.
	• Chemical Injector Centralizer	• ESP System Centralizer with Chemistry Injector.



STAMPED CABLE PROTECTORS



FEATURES

- Each clamp has two-point friction pad gripping system. Which will deform when clamped to the pipe, providing high and strong grip to stop slipping.
- Triple progressive convex pads on the channel improve gripping characteristics of cables without compromising the integrity of the cable.
- Two hinge pin flanges make full contact with API tube to prevent slipping.
- Tapered wedge lock pin with dimples to secure the clamp when inserted.

BENEFITS

- Quick installation
- Reusability.
- Customizable to any tubing connection and power cable size.
- Available for most ESP cable and control lines.

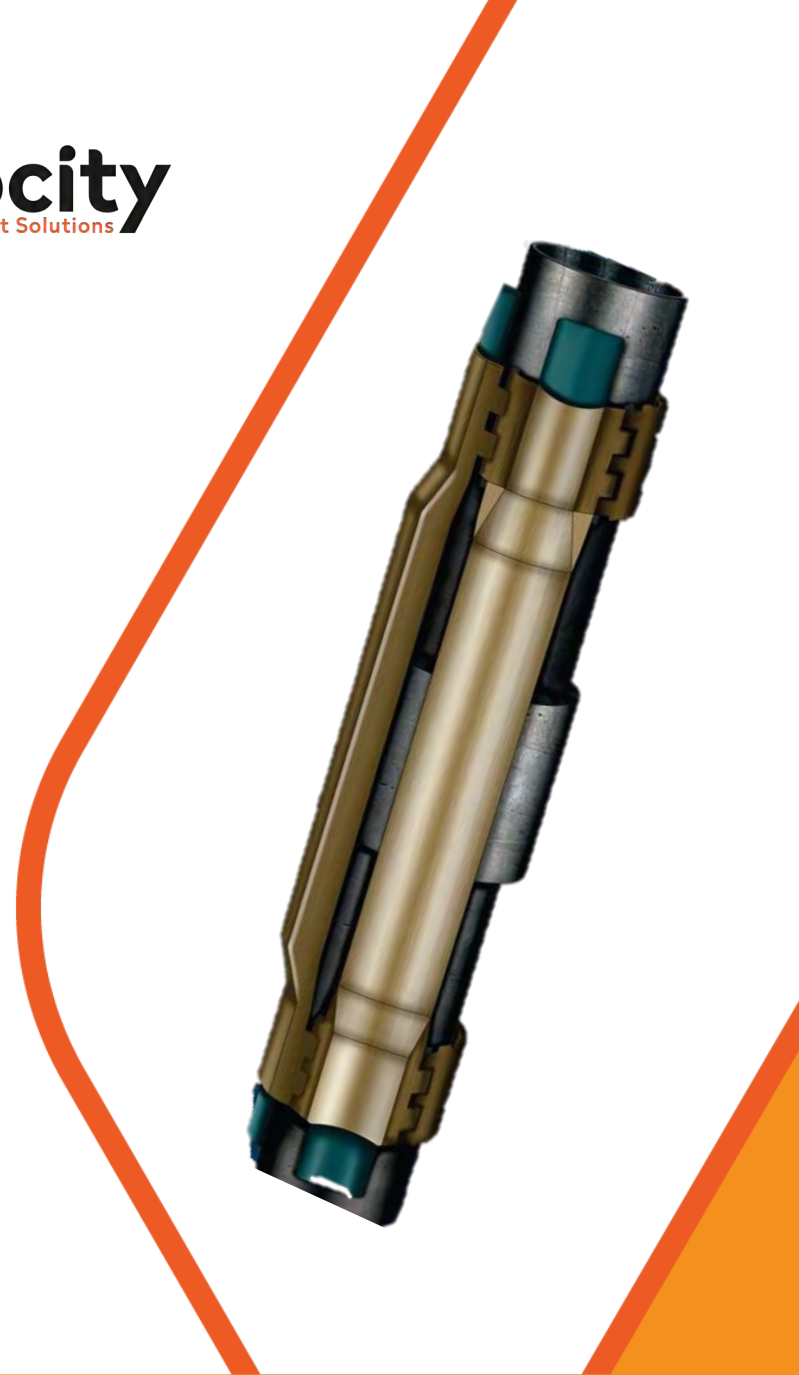
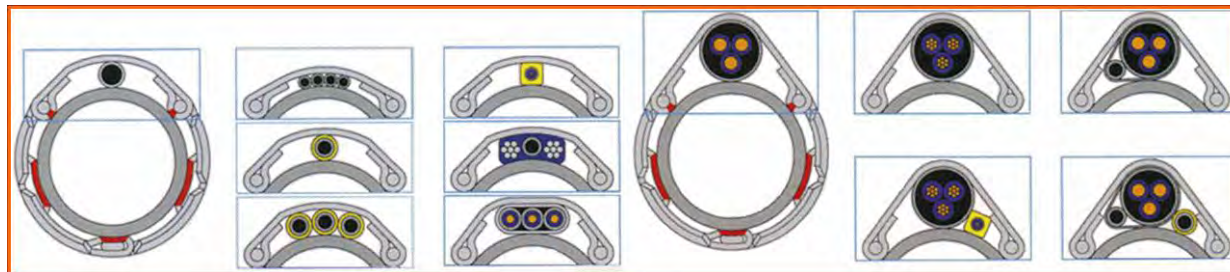
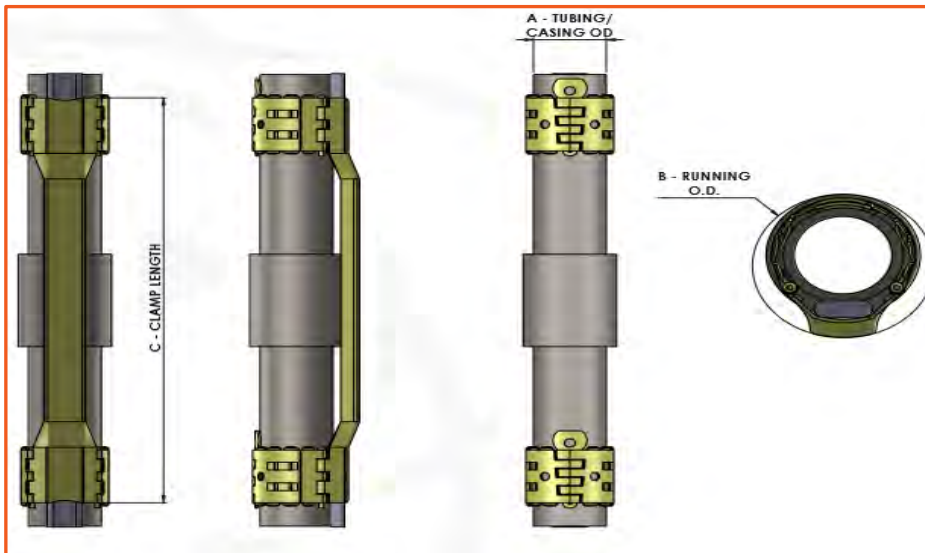


STAMPED CABLE PROTECTORS



Description	Tubing OD	Coupling OD	Cable Information
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3 ½ F16/45	3-1/2"	99.25mm	16.43 X 41.1 mm
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CAST CABLE PROTECTORS



FEATURES

- The body of cable protectors is produced by precision casting using high-grade materials to ensure product reliability.





CENTRALIZERS



NON WELDED HINGED BOW SPRING

Single Rise Bow Spring / Dual Rise Bow Spring / Welded Bow Spring



SINGLE PIECE

Non Welded designs with High Restoring force and zero Running Forces.



RIGID BOW

The bows of this centralizer are specially made of high tensile steel which does not get deformed under high stress conditions.



SEMI RIGID

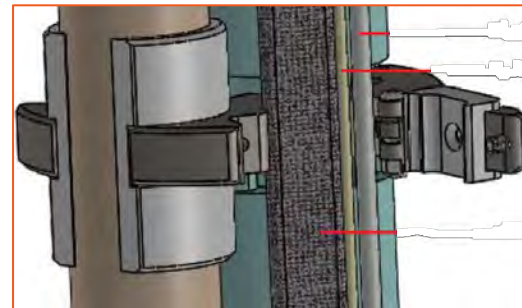
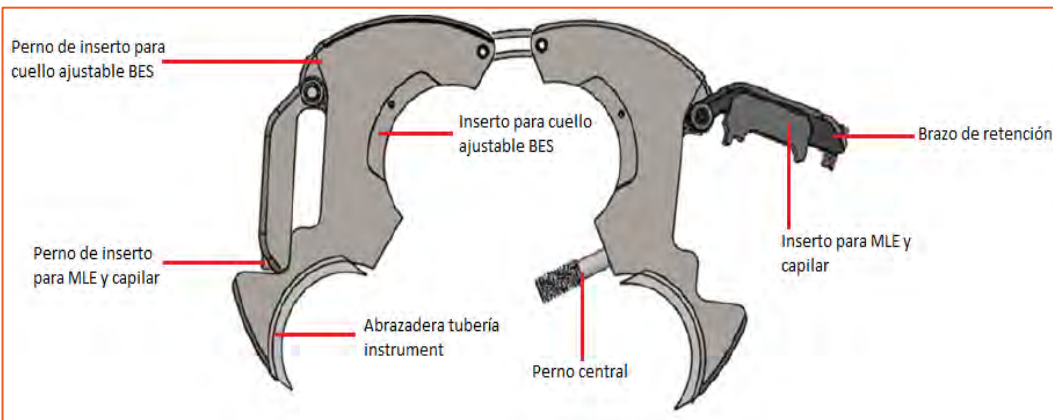
Pressed steel spiral blade centralizer



BY PASS CLAMPS



- Adaptable design to ESP equipment for the 300 – 400 – 500 series.
- They prevent rotation generated by movements produced in the production tubing during the run.
- Run OD for 6" 300 Series, 8 3/16" 400 Series, and 8 1/4" 500 Series.
- It ensures the fit of the MLE cable and control lines, protecting their integrity and extending their service life.
- It has no castings.
- Quick and easy installation.



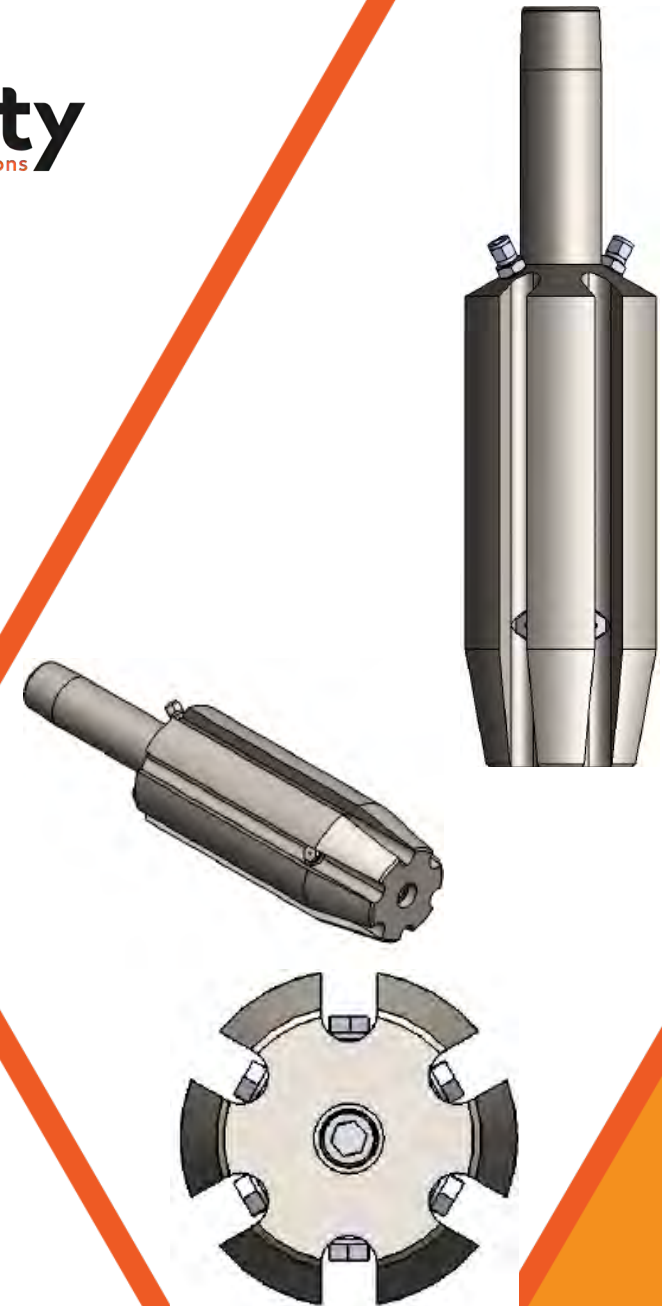
CHEMICAL INJECTOR CENTRALIZER



Characteristics:

- Standard capacity of up to two injection capillaries.
- 6 spray-type dispersion injectors, evenly distributed in 360° over the tool.
- Internal check valve system.
- Minimum bottom pressure to inject 300 to 500 psi.
- Flow capacity from 20 to 1000 GPD.
- Customized for different casing sizes and types of connections with the ESP pump.
- Customized for installations with Y-Tool.
- Also available in 7-5/8" 39 lb/ft.

- The Centralizer for Chemical Injection is installed under the ESP pump sensor, having the basic function of an ESP motor centralizer but with the additional ability to inject chemical from the surface by means of capillaries.
- **Benefits:**
 - It allows a chemical treatment with uniform dispersion.
 - Reduces risk of corrosion due to the use of a single capillary.
 - Reduces risk of ESP pump damage due to injection of poor chemical.
 - Improves the performance and lifetime of the ESP system.
 - Increases reliability of the capillary chemical injection system in the ESP pump.
 - It can be installed in vertical or highly deviated wells.



REPUBLIC OIL TOOLS



Extend the life of your downhole pumps with innovative products, new technologies, and methods to improve operational efficiency, reduce intervention costs, and improve safety outcomes for ESP, SRP, and Gas Lift systems.

Product Type	Specs		
	TECHNOLOGY	SRP	ESP
Par Valve	<ul style="list-style-type: none"> • ESP ó PCP Par Valve 	X	X
Check Valve	<ul style="list-style-type: none"> • Standard ESP Check Valve 		X
	<ul style="list-style-type: none"> • Auto Back Flow Preventer Valve 	X	X
	<ul style="list-style-type: none"> • Jet Check Valve 		X
	<ul style="list-style-type: none"> • Optimal ESP Check Valve 		X
Chemical Injection Tools	<ul style="list-style-type: none"> • Chemical Injection Manifolds 		
	<ul style="list-style-type: none"> • Fittings 	X	X
	<ul style="list-style-type: none"> • TruCheck Chemical Injection Valves 	X	X
Drain	<ul style="list-style-type: none"> • Internal Sleeve Drain 		X
	<ul style="list-style-type: none"> • Knockout Drain 		X
PMM Safety Tools	<ul style="list-style-type: none"> • Auto Safety Disconnect 		X
	<ul style="list-style-type: none"> • Dissolvable Pump Out Plug 		X
	<ul style="list-style-type: none"> • Full ID PMM Dart 		X
Rod Pump Tools	<ul style="list-style-type: none"> • External Sleeve Drain 	X	
	<ul style="list-style-type: none"> • Hydraulic Set Rod Pump Anchor 	X	



PAR VALVE



Pressure Actuated Relief Valve (Par Valve)

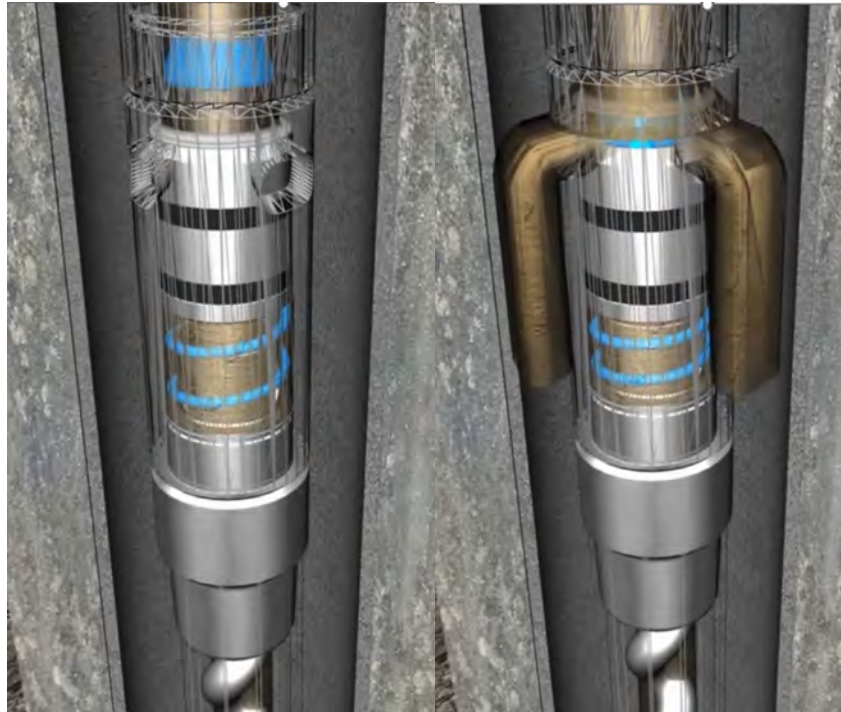
- Actuates off pressure differential from hydrostatic head in tubing.
- Tubing pressure $>$ annular pressure
 - Actuator moves piston opening communication path between tubing and annulus.
- Tubing pressure \leq annular pressure
 - Valve insulates tubing from annulus.
- Currently available in PCP (Par Valve) and ESP (Par Valve).



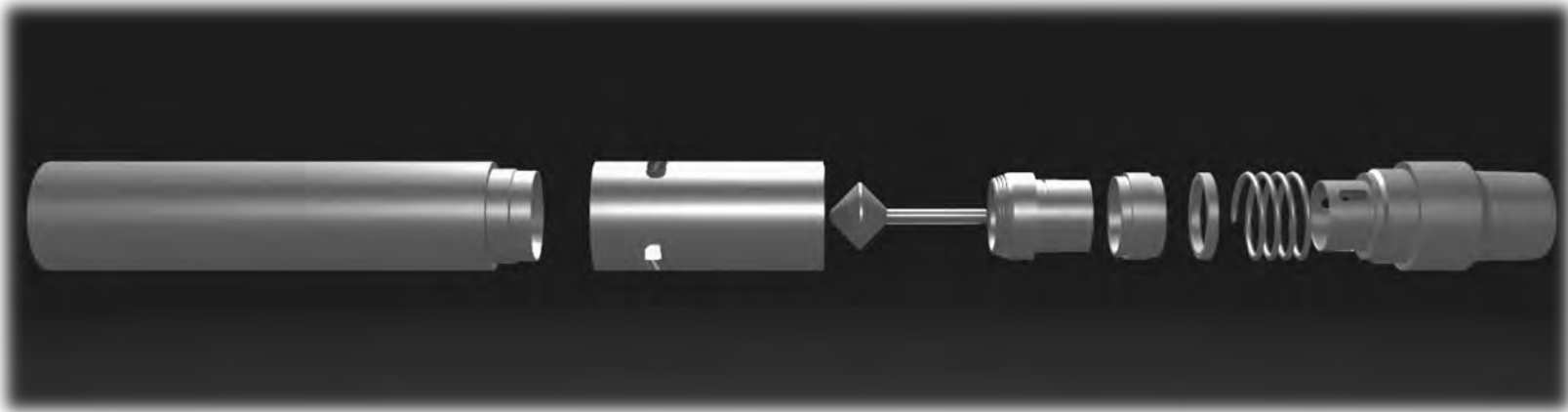
PCP PAR VALVE



- It's a relief valve with a pressure actuator that prevents the accumulation of solids in the discharge of PCP equipment during periods of system shutdown.
- Installed above the PCP discharge, ± 10 ft above the stator.
- Provides direct communication between the annulus and the production tubing.
- Reduces back spin and flushing.
- Increases the Run life of the bomb.



ESP PAR VALVE



- It is a relief valve with a pressure actuator that prevents the accumulation of solids in the discharge of ESP equipment during periods of system shutdown.
- Provides direct communication between the annulus and the production tubing.
- Installed above the ESP discharge.
- Increases the Run life of the bomb.
- Eliminates stuck pumps and broken shafts.



STANDARD ESP CHECK VALVE



The Check Valve is the most cost-effective solution to isolate the ESP from fluid and solid fallback after a pump shutdown.

Our Standard Check Valve includes a unique removable seat allowing you to refurbish and reuse which saves money and helps reduce waste. Made with high-quality materials and precision engineering, this check valve is built to withstand harsh conditions and demanding applications.

A Velocity ALS Knockout Drain should be run above the Standard Check Valve to prevent pulling the tubing string wet.

Size	2-3/8"	2-7/8"	3-1/2"	4-1/2"
Part Number	RE-15783	RE-15784	RE-15785	RE-15786
Housing Metallurgy	1026, 4140, 316 SS, 416 SS, 2205 Duplex, 13Cr*			
Poppet Metallurgy	A216, 2205, Inconel*			
Thread Size	2-3/8" EUE 8rd	2-7/8" EUE 8rd	3-1/2" EUE 8rd	4-1/2" EUE 8rd
Outside Diameter (in)	2.913"	3.625"	4.500"	5.30"
Length (in)	7.75"	9.00"	9.00"	10.315"
Weight (lbs)	7.3	11.5	18.6	36.5
Removable Seat	✓	✓	✓	✓
Options	*Other Sizes & Metallurgies available upon request			



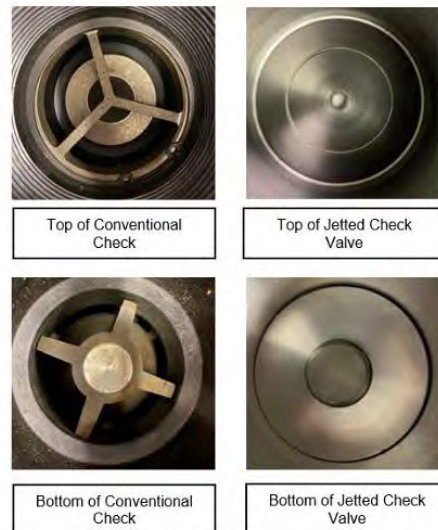
JETTED CHECK VALVE



Jetted Check Valve (JCV) offers the latest evolution in solids avoidance tools for use with ESP Systems. The JCV is designed to prevent solids from falling into the pump during a shut down and jet washes those solids away during start up.

Typically, after an ESP shut down in an unconventional wellbore, frac sand immediately packs the pump full of solids causing a stuck pump or broken shaft when it is attempted to be restarted. The JCV prevents this from occurring by capturing all fluid and solids above the ESP.

During start up there are two independent strokes that take place based on the condition of the fluid or solids above the valve. First, if there is a large amount of debris, the inner dart of the JCV will function as a jet nozzle to begin washing away solids on top of the valve. This is a high pressure, low volume nozzle that utilizes pressure from the ESP to blast its way through the initial layer of solids. Once the jet nozzle begins to clear solids, the primary sleeve can then be opened for high flow and high pressure to finish clearing the solids and resume production as normal



AUTO BACK FLOW PREVENTER VALVE



Auto Back Flow Preventer is a spring loaded check valve designed for use in salt water disposal wells, water floods, and supercritical CO2 injection. Deployed downhole on the tubing string below the annular packer, the Auto Back Flow Preventer keeps previously disposed of fluid from entering the tubing string when the injection is ceased. This offers isolation downhole and prevents high pressure downhole fluid from returning to the surface.

This is a cost-effective solution that has been deployed countless times across numerous different basins.

It is strongly recommended to run a knockout drain above the ABFP to prevent from pulling the tubing string wet.



OPTIMAL ESP CHECK VALVE



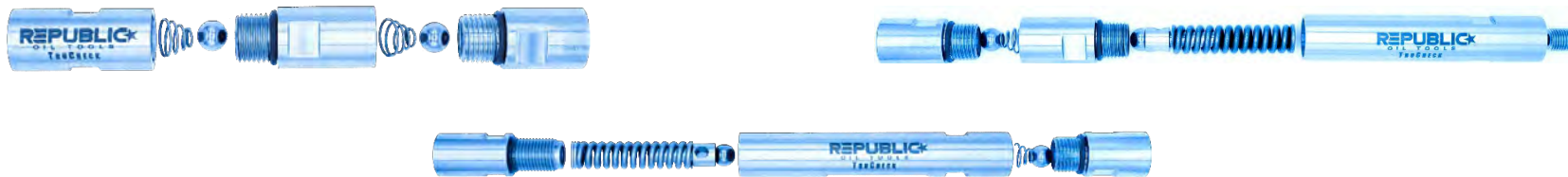
- The Optimal ESP Check Valve offers an improvement on the basic ESP check valve. Instead of utilizing a cast iron poppet on a machined seat, the Optimal Check Valve has a machined and hardened poppet that features solids relief rings along the seat that eliminates high pressure washouts and prevents leaking check valves. This improves the run time of the electrical submersible pumping system for a marginally higher cost of the check valve as compared to the basic ESP check valve.
- Available Options:
 - 1026, 4140, 304SS, 440C, 13Cr
 - 2-3/8", 2-7/8", 3-1/2"



TRUCHECK CHEMICAL INJECTION VALVES



- Check valves for use in chemical injection systems for upstream oil and gas operations.
- The line of check valves, called TruCheck™, eliminates internal o-rings, elastomers, and the removable seat to ensure the tools truly check to keep wellbore fluid from entering and plugging the capillary string.
- Additionally, the top compression fitting where the check valve connects to the capillary tube will never be a ball seat thereby eliminating field service from dropping parts downhole while making up the check valve.
- The TruCheck Injection Valve (TCIV) product line has several different tiers to ensure a reliable, cost-effective solution.



INTERNAL SLEEVE DRAIN VALVE



- Tubing Internal Sleeve Drain (ISD) is a pressure-actuated sleeve drain designed to allow fluid drainage from the tubing, preventing the need for retrieval while it's wet.
- Typical applications include Permanent Magnet Motor (PMM) Electric Submersible Pumps (ESP).
- In the PMM-ESP configuration, the ISD serves as a path of least resistance for fluid flow, preventing the PMM from spinning. This offers a reliable alternative to perforating the tubing string, which can otherwise damage the motor's lead extension or power cable.
- The Internal Sleeve Drain differs from the External Sleeve Drain in that it is pressure-balanced, eliminating premature pin shearing. This provides operators with peace of mind, ensuring no premature workover. The positive barrier is only established when the PMM Dart is dropped and lands inside the drain, preventing fluid movement up or down the tubing string. Positive pressure above the dart will shear the pins, opening the drain. Alternatively, the ISD can be actuated with a 1.75" or 2" ball if a dart is undesirable. Additionally, for pressure testing purposes, a dissolvable ball can be landed on the drain as long as the test pressure remains below the shear pin value.



KNOCK-OUT DRAIN VALVE



- The Knockout Drain (Bleeder Valve) is the classic bar drop drain utilizes to prevent pulling wet when conducting workover operations on an Electrical Submersible Pump. With a wide variety of sizes and metallurgies, this is a cost effective solution to keep from having to perforate the tubing with wireline before the ESP is pulled out of hole.
- Options available:
- Housing Metallurgy = 1026, 4140, 304, 440C, 13Cr
- Plug Metallurgy = Bronze, Monel, 2205 Duplex, Inconel 800

Size	2-3/8"	2-7/8"	3-1/2"	4-1/2"
Part Number	RE-15787	RE-15788	RE-15789	RE-15790
Housing Metallurgy	1026, 4140, 316 SS, 416 SS, 2205 Duplex, 13Cr*			
Plug Metallurgy	K400 Monel**, Bronze			
Thread Size	2-3/8" EUE 8rd	2-7/8" EUE 8rd	3-1/2" EUE 8rd	4-1/2" EUE 8rd
Outside Diameter (in)	3.06"	3.63"	4.50"	5.30"
Length (in)	7.5"	8.75"	9.375"	10.5"
Weight (lbs)	6.25	10.50	17.00	33.50
Options	*Other Sizes & Metallurgies available upon request			
	**Part number listed is made with K400 Monel			

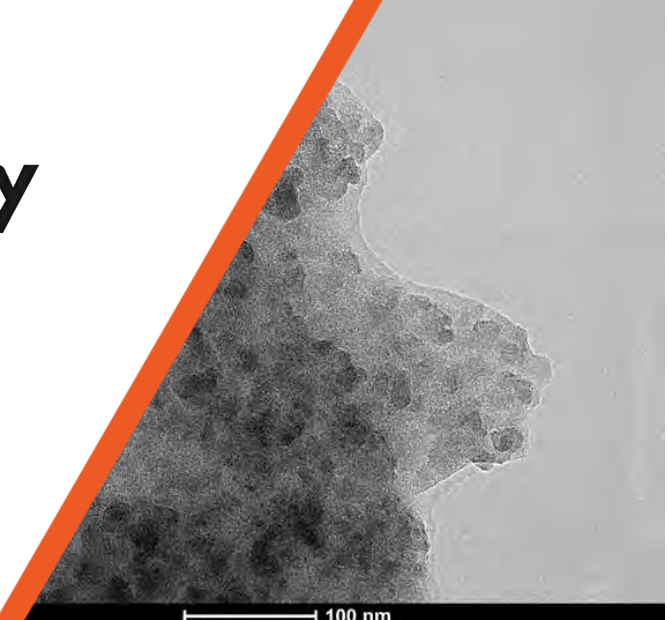


TENEX TECHNOLOGIES



Pioneering technologies based on chemical materials for the oil and gas industry that offer product enhancement, increased well productivity, substantial and lasting improvements in the background from nanoparticle systems and solutions.

Product Type	Specs	
	TECHNOLOGY	DETAILS
Improve Frac Efficiency	MicroHOLD	Improves well fracturing and production efficiency.
Enhance Well Production	NanoCLEAR	Nanoparticle solution that alters the wettability of formation to increase oil production.
Stop Sand Production	SandBOND	It produces an in-situ reaction to promote the binding of sand in the drill zone, controlling the return of the frac sand.
Remove organic deposits	CeraFLO	Water-based solution to treat organic deposits in the formation.
Stop Frac Hits	NoHIT	Fracture impact mitigation technology by gradual and controlled in-situ pressure of depleted rock intervals around the main well.
All in one place	FullSTIM	Gel and polymer breakers with mixed functions to remove scale, modify wettability, deflect foam and aid the mobility of heavy crude.

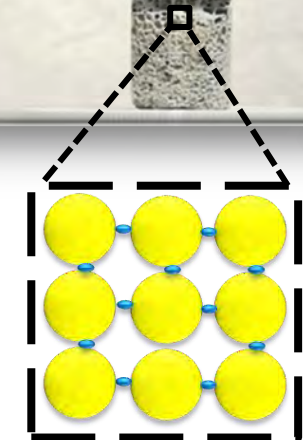


SANDBOND



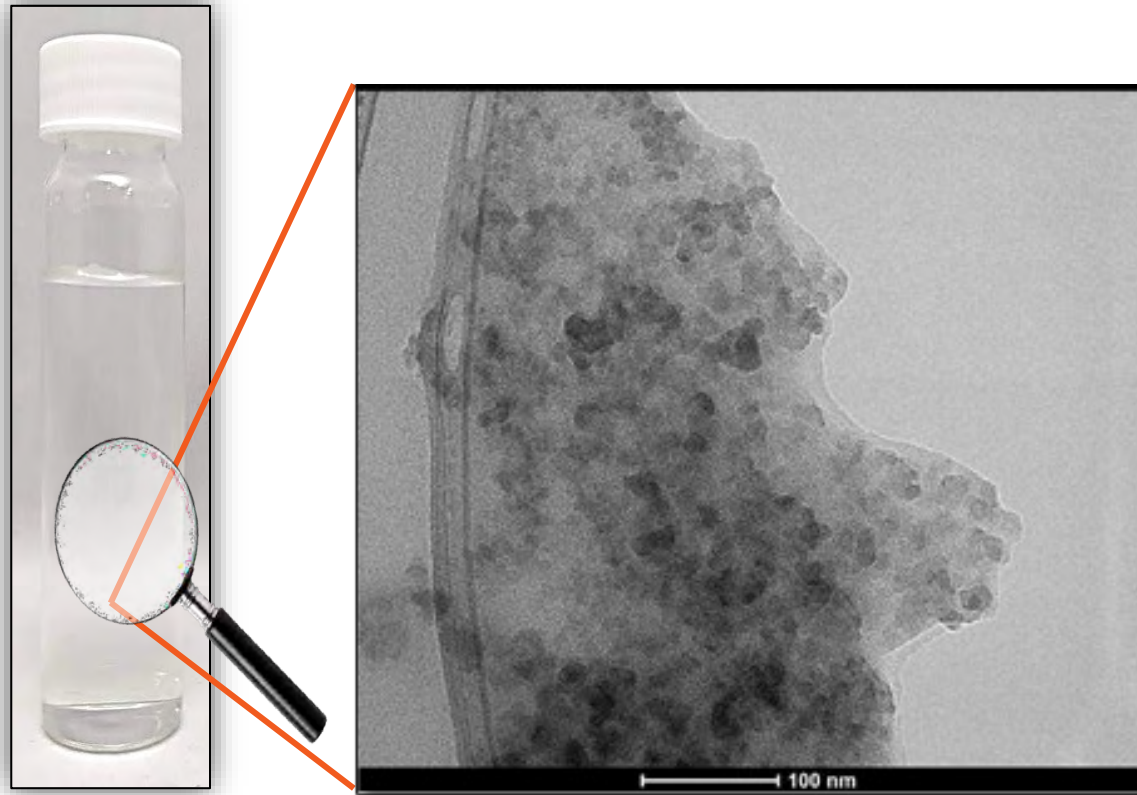
Pioneering Technology to Mitigate Sand Production from New and Existing Wells

- In-situ Metallic Bond Oxidization Mechanism.
- Particle-to-particle consolidation in the near-wellbore zone.
- Effective for proppant flowback and unconsolidated formation.



● Oxidized Al
● Sand particle

Patented Nanoparticles Technology Production Enhancement for New and Existing Wells



- Water-based metal oxide nanofluid that alters formation wettability and can be easily incorporated into existing waterflooding programs to increase oil production.
- They have a size of 3 - 11 nm and that they can access the nanopores where traditional surfactants fail.
- It has proven its efficiency by:
 - ✓ Strong long-term wettability alteration.
 - ✓ Reduction of interfacial tension (IFT) of oil.
 - ✓ Decrease in residual oil saturation.
 - ✓ Improved permeability relative to oil.
 - ✓ Elimination/inhibition of formation damage by organic and inorganic depositions.
 - ✓ Effective in high pressure and temperature conditions.

CERAFLO



Greener, Cost-effective Proprietary Blends to Eliminate Paraffin Issues

- Is a suite of water-based solutions to treat organic deposits in formation, wellbore, pipelines, transfer lines, well metallurgies, downhole equipment, and difficult-to-reach locations. .
- It is cost-effective, easy to use, non-corrosive, non-flammable and non-toxic, and can adapt to a wide range of operating conditions.



REVIVE ENERGY SOLUTIONS



Our solutions provide improved and sustainable well production without compromising safety or integrity. Our products revive underperforming wells. There, innovative chemistry and technology are used to obtain more effective chemical solutions. As a result, our customers see a higher success rate and lower environmental impact than standard treatments.

Product Type	Specs	
	TECNOLOGY	DETAILS
Stimulations Chemicals	<ul style="list-style-type: none"> Software Multifunctional Chemicals 	<ul style="list-style-type: none"> Offers unique multifunctional chemistry packages and software designed to maximize well production. With Revive, technology, chemistry, engineering, and expertise come together to precisely diagnose well damage and customize treatment to enhance production..
Production Chemicals	<ul style="list-style-type: none"> Multifunctional Chemicals 	<ul style="list-style-type: none"> The production chemical fluids are designed to protect the integrity of a well’s engineering and production systems while enhancing production. To help these chemical solutions meet today’s challenges, we’ve reinvented them. Our solutions better serve our clients to lower HSE risk and environmental impact by eliminating unneeded carrying solvents. Our slow-releasing, patented chemicals do more with less. They prioritize sustainability and safety and extend the life of your well.
Completion Chemicals	<ul style="list-style-type: none"> Multifunctional Chemicals 	<ul style="list-style-type: none"> Chemicals used during the hydraulic fracturing process are critical to both completion and stimulation. Revive’s team of experts is equipped with the oil and gas industry knowledge required to increase efficiency and safety in every type of drilling operation. Our completion chemicals effectively treat and condition the water for fracking application.





STIMULATION CHEMICALS



Innovative Software

- Identifies wells best suited to benefit from stimulation chemical treatments
- Predicts production enhancement outcomes
- Diagnoses damage and outlines treatment
- Calculates and measures progress

Advanced Chemistry

- Unique, fit-to-purpose chemical packages
- Raised efficiencies lower logistical cost and environmental footprint
- Reduced acid

Conscious Engineering

- Real time data monitoring
- Traceability of treatment volume
- Automated self-control valves and pumps

Industry Expertise

- Top experienced personnel in oil and gas market
- Rigorous training program

PRODUCTION CHEMICALS

Asset Integrity Management

Our chemical solutions protect the integrity of your assets along the entire production system, from downhole to the delivery of production fluids. Our innovative chemicals are fit for conventional and unconventional production.

Precise chemical application from experienced professionals provides our customers the right solution to meet challenging corrosive environments.

Flow Assurance

The economical flow of fluids is critical to success throughout the production system— including formation, downhole, and surface. Our flow assurance solutions include asphaltene, scale, and paraffin management and solids control.

Not only are we able to diagnose and solve for damage, we prevent future damage to improve the value and production of your well.

Fluid Separation and Water Treatment

Our solutions are designed to mitigate fluid separation problems and increase the value of your operations.

The fluid separation and water treatment chemical solutions increase well efficiency by solving for foam, flow restrictions, or other liquid impairments caused by oil and water separation.



COMPLETION CHEMICALS



Chemicals used during the hydraulic fracturing process are critical to both completion and stimulation.

Our team is equipped with the oil and gas industry knowledge necessary to increase efficiency and safety in all types of drilling operations.

Our completion chemicals effectively treat and condition the water for fracking application.

Designed to protect formation and improve frac performance, our variety of chemical additives offer fit-to-purpose solutions ready to meet the unique challenges of each well

Our solutions include:

- Slickwater
- Crosslinked Fluids
- Breakers
- Production Enhancement
- Friction Reducers
- Clay Stabilizers
- Scale Inhibitors
- Biocides
- Oxidizers

CYCLONIC VALVE COMPANY



Our solutions provide High Performance Control & Choke Valves.

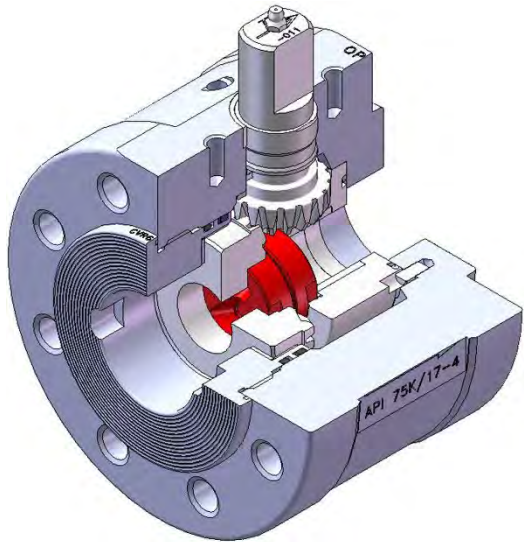
- ***Wellhead Control***
- ***Artificial Lift (Plunger, Gas Lift & ESP automated control)***
- ***Production Chokes (Separators, Line Heaters, Flow Back Units)***
- ***Injection Control – Water, CO2, Natural Gas, & Steam***
- ***Pump Backpressure Control***
- ***Suction and Discharge control on Compressors***
- ***Wellhead control chokes***
- ***Pump Test bench control***

TECNOLOGY	TECNOLOGY
✓ Gas Lift Injection Control	✓ High Temperature & Erosive Applications
✓ Better control & automation in water Injection Wells	✓ Valve Designs – STDC “Threaded” Valve
✓ High Pressure Wellhead Control	✓ Valve Designs – SFDAL “LongBody” Valve

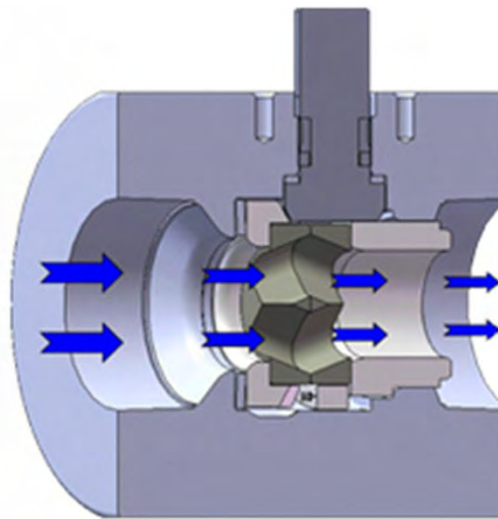


EFFICIENT FLOW PATH

Cyclonic's in-line flow configuration provides for lower internal erosive wear, improving resistance to cavitation and lower pressure drop through the valve



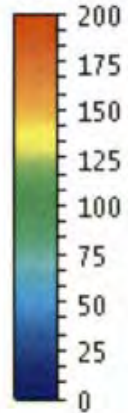
ANGLE VIEW



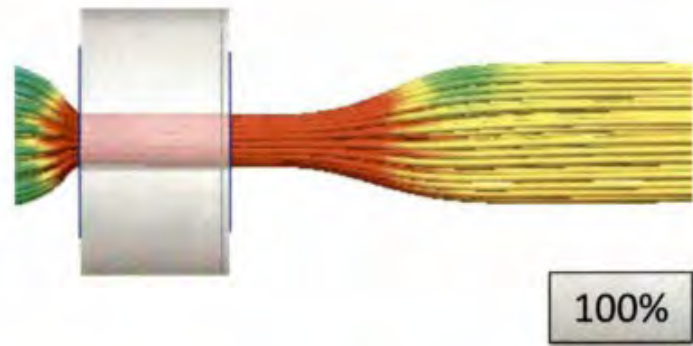
SIDE VIEW

THE CYCLONIC CONTROLLABLE CHOKE VALVE

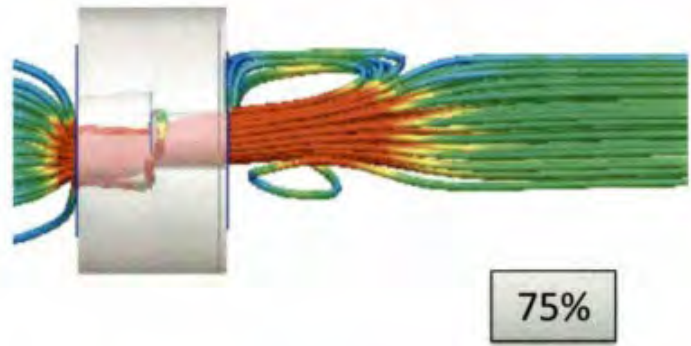
[1] Velocity Magnitude - ft/s



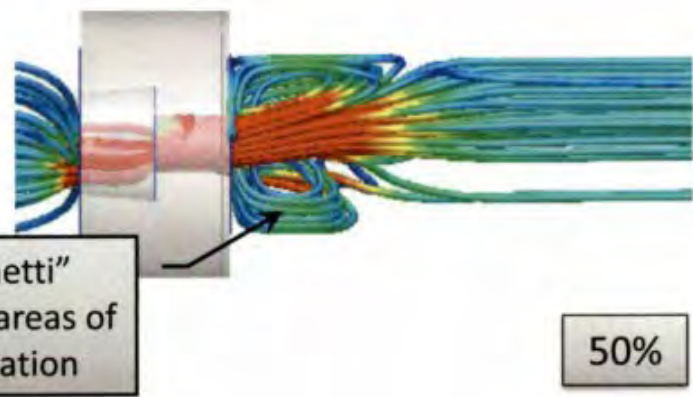
View is from the top looking down



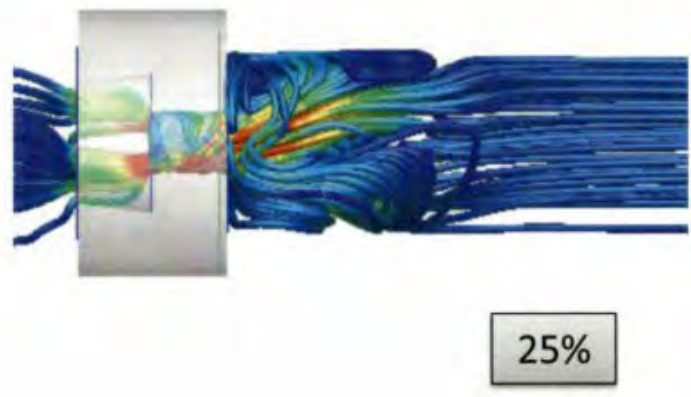
100%



75%



50%



25%

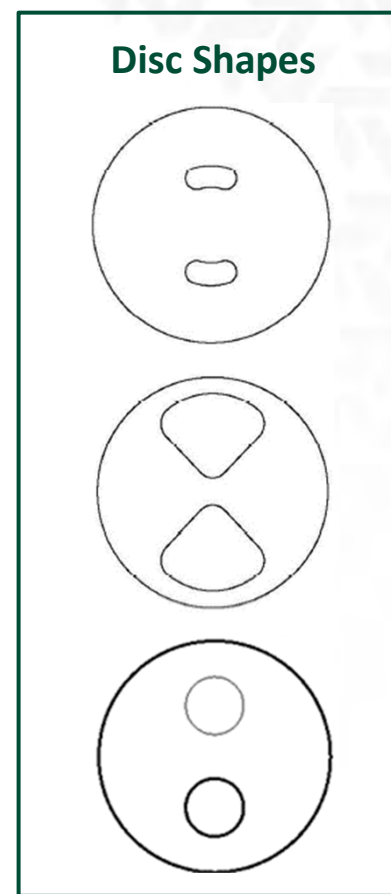
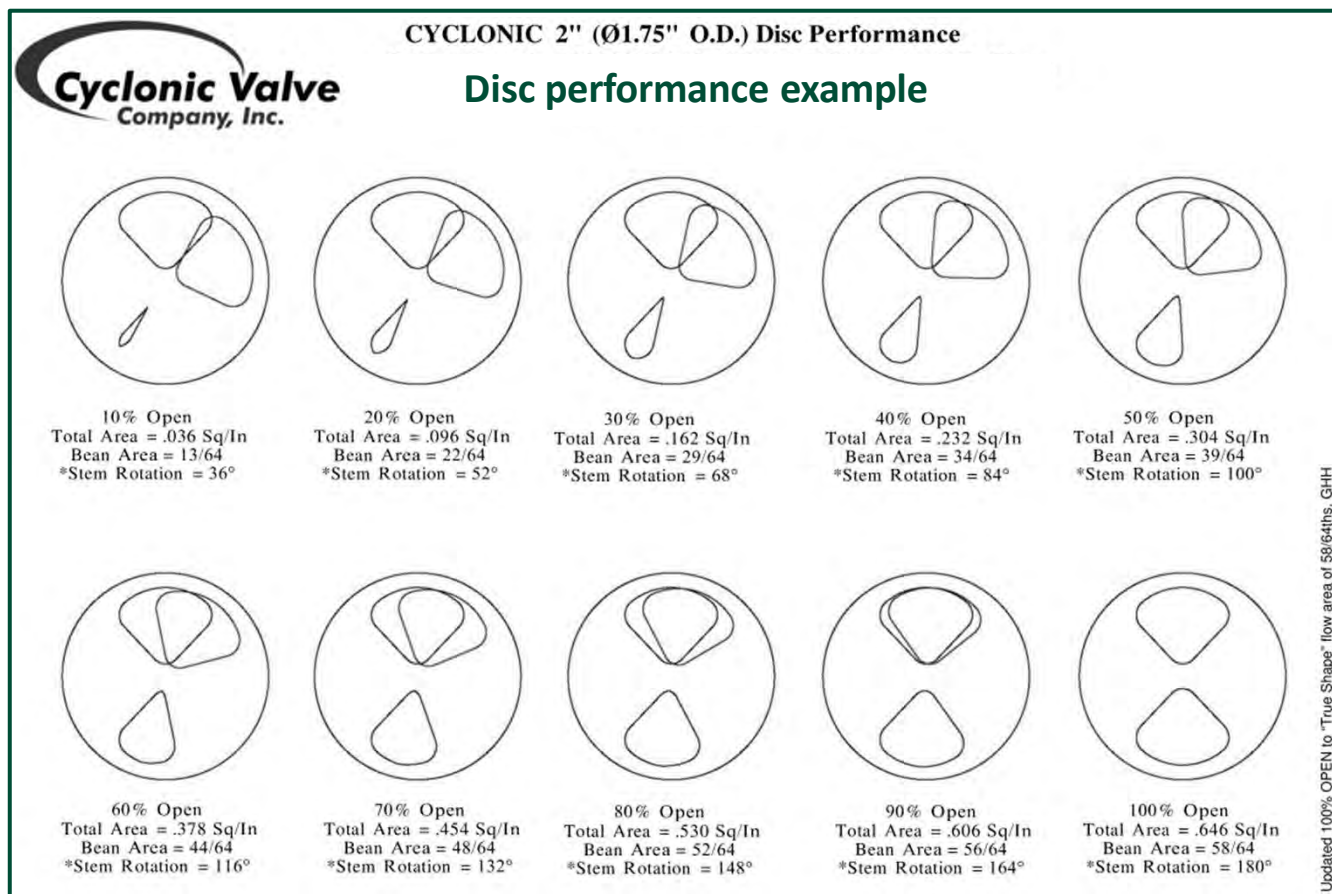
"Spaghetti" indicates areas of recirculation



THE CYCLONIC CONTROLLABLE CHOKE VALVE



Wide selection of disc shapes & sizes to match each application for precise throttling control



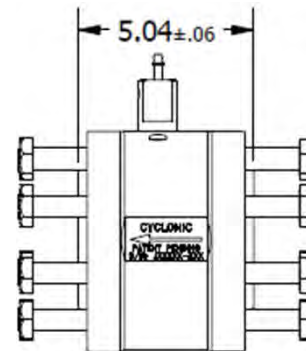
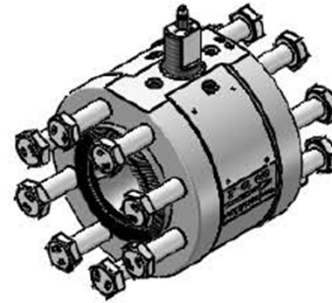
Disc Sizes

D1	Cv up to 5.2
D2	Cv up to 23
D6	Cv 7.1 to 60
D9	Cv 70 to 100

GAS LIFT INJECTION CONTROL



- Field-proven performance
- 2" FDA CL600 valves
- ~4,000 Valves deployed in Permian
- Compact design
- Available in multiple orifice sizes
- Tungsten-carbide discharge sleeve
- Body machined from solid bar stock
- Carbon Steel Nickel plated body
- Reliable trouble-free operation



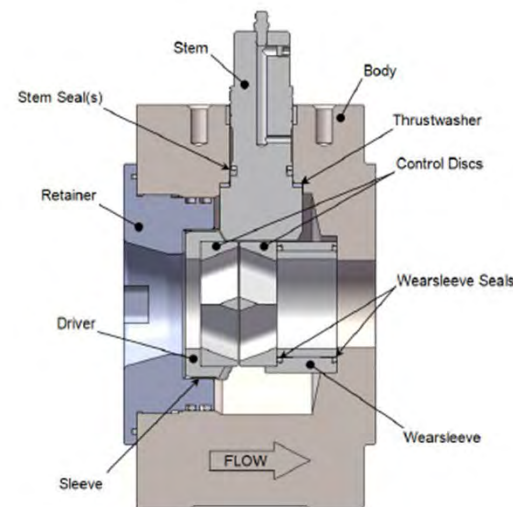


BETTER CONTROL & AUTOMATION IN WATER INJECTION WELLS



Is the standard back-pressure control valve for SWD applications

- Ensures pressure compliance
- Reduces uncertainty of well injection pressure requirements
- Adjustable control for injection wells with multiple pumps
- Keep pump operating at peak efficiency
- Use in combination with Variable Speed Drives for complete control and automation of volume and pressure
- Automated for Remote - unmanned operations
- Available in 4130 steel, 316 SS, & 2205 Duplex
- Available in 2" to 6" – CL600 to CL2500

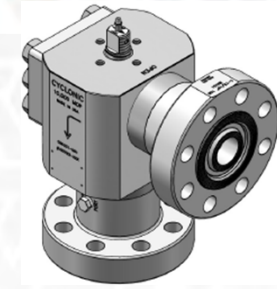
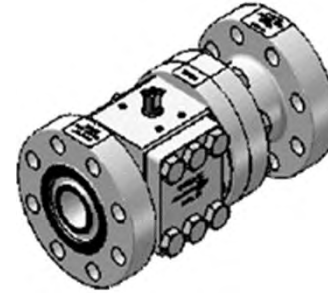




HIGH PRESSURE WELLHEAD CONTROL



- Field-proven performance
- Compact design
- Rated to 5,000 & 10,000 MOP
- Available in multiple line sizes
- Custom face dimensions
- Side-entry access
- Tungsten-carbide discharge sleeve
- Body machined from solid bar stock
- Angle body & In-line options





HIGH TEMPERATURE & EROSIVE APPLICATIONS

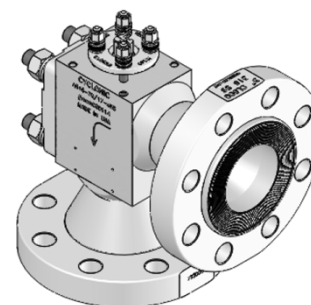


Proven performance in high temperature and erosive applications

- Over 1,000 valves in Operation in a steam flood field in California
- Cyclonic valves control steam to injector wells, and provide injection and production control in cyclic injection wells
- New valves in production wells are equipped with Cyclonic's proprietary Erosion Detection System
- Valves can handle full ANSI 1500 pressures, temperature to 600F+ in an abrasive and corrosive environment
- Valves are fully automated with electrical actuators



In Cyclic wells, angle body valves handle thermal cycles of 100F to 600F and pressures from 100psi to 800psi during the production phase

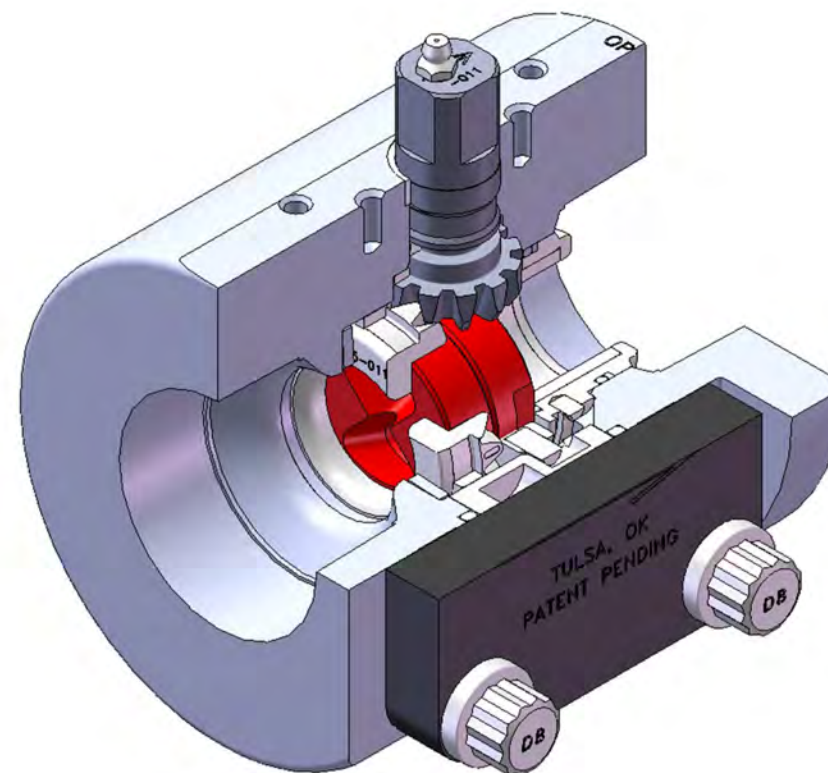




VALVE DESIGNS – STDC “THREADED” VALVE



- NPT thread connection
- Available in 1” and 2” connections
 - D2 and D6 discs available
- Low torque design
- Side-entry access
- Tungsten Carbide discharge sleeve

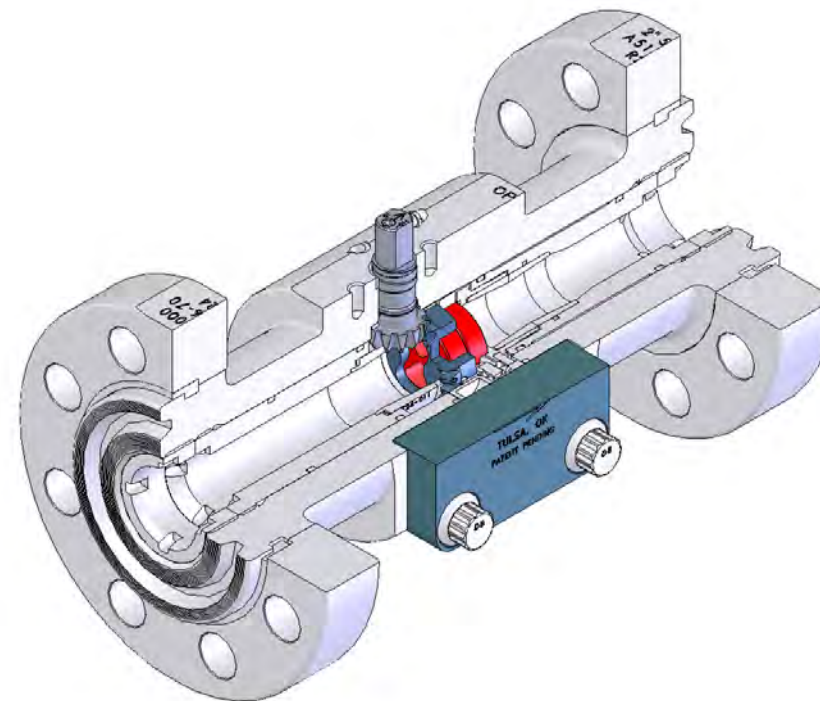




VALVE DESIGNS – SFDAL “LONGBODY” VALVE



- Robust design
- Pressure port indicator of wear
- Low torque design
- Side-entry access
- Oversized tungsten-carbide discharge sleeve





ACTUATION



Rotating-stem disc control design provides for a simpler, more reliable actuated configuration and works well in an automated operation

- A range of rotation options. From the fast 90 degree, to the highly accurate 540 deg
- Easy to Automate
- Low Torque requirements
- Compatible with most actuators
- All valves pre-drilled for actuator mountings
- Mounted and calibrated in our facility

Valvcon



Bettis Torqplus



Max-Air UT Series





APPLICATION EXAMPLES



Gas Lift



Eagle Ford

CO2 Injection



Permian Basin



APPLICATION EXAMPLES

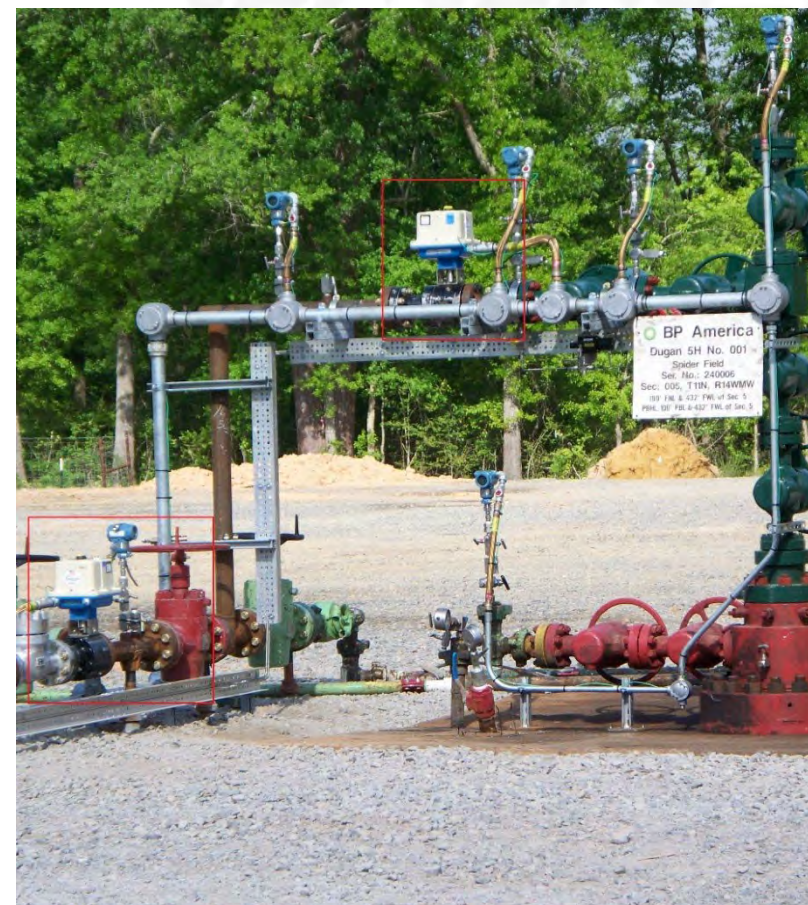


Wellhead Control

Wellhead Control



Rockies



Haynesville



APPLICATION EXAMPLES



GPU Control Choke



Marcellus

GPU Control Choke



Marcellus



APPLICATION EXAMPLES



GPU Inlet Choke



Marcellus

WAG System



Rockies

THANK YOU!



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