



TEMPRESS®



Oil States Energy Services – Health, Safety, & Environmental

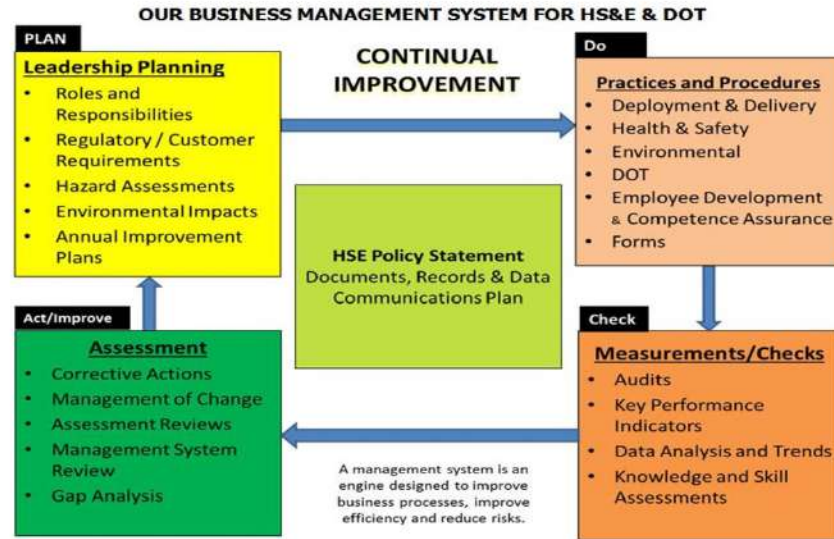


OIL STATES
Energy Services



Oil States Energy Services – Health, Safety, & Environmental

- At OSES being a safe and responsible operator with an awareness of the need to be a good steward of the environment is a requirement.
- Our HSE program is a continuous improvement program that is ever-evolving to provide guidelines and information to our employees and customers.
- Our HSE team has developed several awareness programs over the years including **High 5**, which highlights the precautions to be used when utilizing hand driven tasks. Or **Hazard Huddle**, which places our teams in a group discussion before any changes to job scope are implemented.
- iScout** is a program that blends the balance of HSE and QA/QC with the ability to execute multiple tasks through the mobile app. These functions include, but are not limited to:
 - Refresher Safety Training
 - Work Instructions
 - Standard Operating Procedures
 - E-Observation Card System
 - Inspection Scheduling
 - Safety Data Sheets
 - Safety Metrics



Oil States Energy Services – Quality Control / Quality Assurance

- **Center for Excellence and Readiness Training** or **CERT** is a centralized facility in Oklahoma City, OK that is an integral part of an employee being onboarded at OSES.
- All sections of HSE training and compliance are taken here during a week long program that is tailored to each operators function in his or her respective job function.
- Additional product line specific training is performed on site both in a classroom and practicum setting. This allows our operators to have a head start before being deployed to a location.
- **Risk Connect** is a system that sends an e-mail blast to all management to alert them of any incident across the company.



Oil States Energy Services – Frac Stack



Oil States Energy Services – Frac Stack



Frac Valves

- OSES Frac Valves utilize a proven bi-directional slab gate with metal to metal sealing.
- Frac Stack configurations are custom tailored to the needs of our customers. This allows us to provide all of the necessary functions from fracking operations to workovers and flowback.
- Valves may be manual or hydraulic operation.
- Available Sizes: Up to 7-1/16"
- Pressure Rating: Up to 15,000 psi



Zipper Manifolds

- OSES Zipper Manifolds are available in multiple configurations.
- Frac Heads are available in sizes from 3-1/16" 3-Port to 7-1/16" 5-Port.
- Valves may be manual or hydraulic operation.
- Units are skid mounted for ease of installation and transport.
- Pressure Rating: 15,000 psi
- Bore Size: 7-1/16"



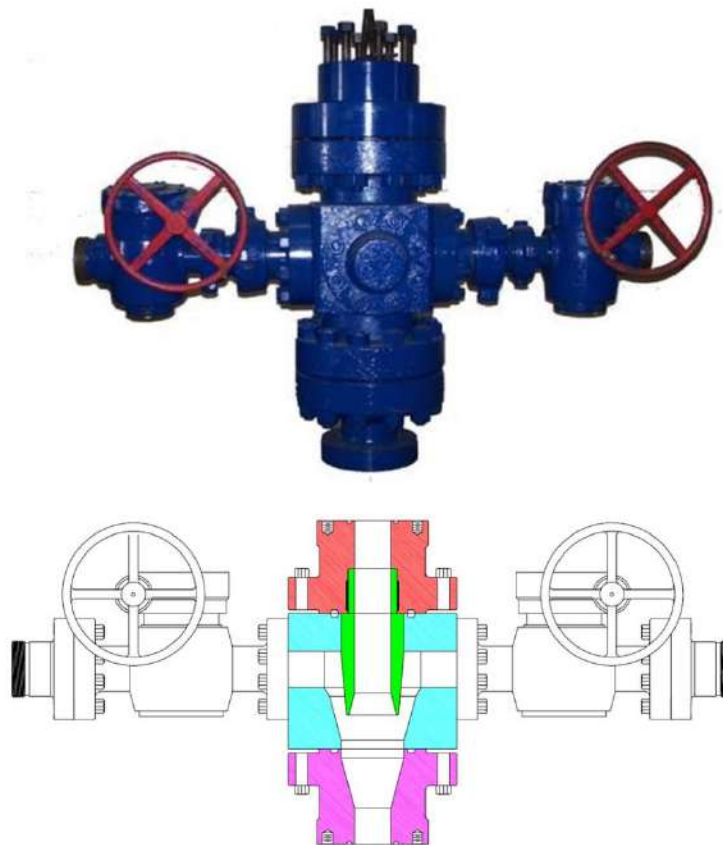
Zipper Bridge System

- Reduced rig up times of up to 70%. This is accomplished with the reduction of up to 60 connections and subsequent restraints along with a one-lift setting process.
- Variable well spacing conditions are addressed with a patent pending extendable spool which allows for up to 24" of movement.
- Zipper Bridge can rotate in place and accommodate differing inclinations of wellhead configurations.
- Two points of entry at the manifold reduces fluid velocities by 50%. Furthermore, two points of distribution at the wellhead reduces potential damage to surface equipment and provides balanced flow across the system.
- Pressure Rating: 15,000 psi
- Vertical Bore: 7-1/16"
- Horizontal Bore: 5-1/8" x 2
- Max Flow Rate: 120 bpm



Coiled Tubing Frac Head

- Wash on coil tubing is minimized with our patented design providing optimum protection on coil erosion.
- The connection configurations on both the top and bottom of the coil tubing frac head can accommodate many sizes and configurations.
- It can be configured with two or four plug valves depending on the pumping rates required.
- Pressure Rating: 10,000 psi
- Blast joints available in:
 - 4.0"
 - 5.0"



Remote Greasing Unit

- Our Remote Greasing Unit is a fully automatic unit delivering grease to all valves on a complete frac stack simultaneously.
- Each hose is equipped with a quick connect fitting for seamless and quick installation.
- With up to 100' of spacing between the grease unit and the red zone, we are able to keep our operators in a safe position away from energized equipment.
- The unit is fed with an ultra reliable Lincoln grease pump and powered by a Vanair Viper diesel fueled air compressor.
- Multiple variants of grease are available and are custom suited to the application and temperature.

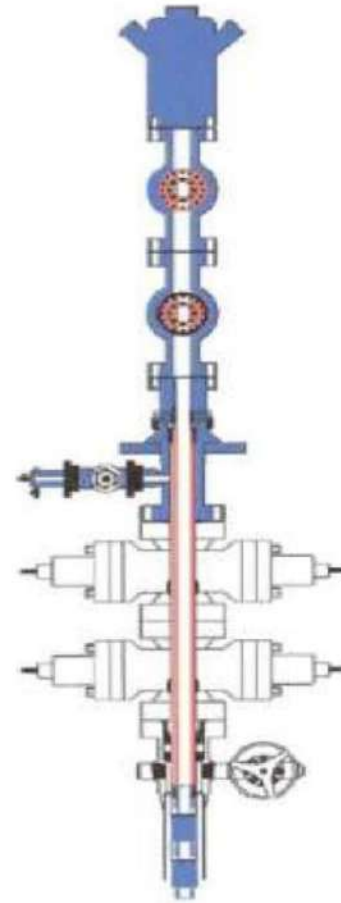


Torque & Testing

- Our test pumps are equipped with:
 - 15,000 psi Triplex Pump
 - 100' of 16,500 psi Blast Hose
 - Chart Recorder
 - 500 gallons of water
 - 7-1/16" and 5-1/8" Test Plugs with Mandrel
- We are currently utilizing Torsion X HexPro Series torque wrenches which provide 162 ft/lbs – 28,861 ft/lbs of torque.
- Each unit is tested and certified before it is deployed to location.



Oil States Energy Services – Isolation Tools



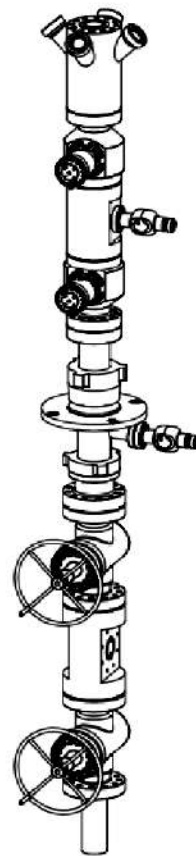
Stage Frac Tool

- Protects all valves on wellhead stack including side valves which adds extra security from gaskets or valve leakage
- Has a straight thru bore that reduces erosion and keeps flow consistent that minimizes proppant migration into valve seats
- Utilizes a Plug valve that has a straight bore eliminating erosion or proppant build up and has a quarter turn open/close. This promotes safety to individuals and environment if treating line is breached
- Designed to allow flowback for screen outs and equalization for wireline operations etc
- Can seal in 7" and larger for liners to be completed in 4-1/2" pipe.
- All components are manufactured by OSES (API) and can be designed for various tubing spool designs (except valves)
- Pressure Rating: 15,000 psi

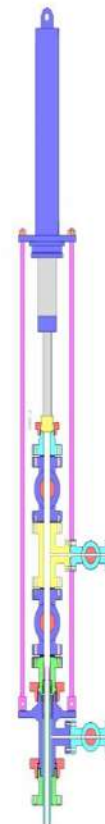


Casing / Tubing Saver Tool

- The isolation tool completely isolates low pressure surface equipment from treatment pressure, corrosion and erosion.
- The isolation tool extends through the tree or BOP and seals inside the tubing/casing below.
- Sizes from 2-3/8" - 3-1/2" tubing in all sizes and weights.
- Sizes range from 4-1/2" - 9-5/8" casing in all sizes and weights
- Low, unobstructed profile tools
- Installed and removed under pressure
- Pressure Rating: 15,000 psi



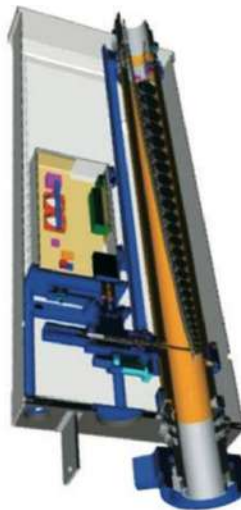
Casing Saver



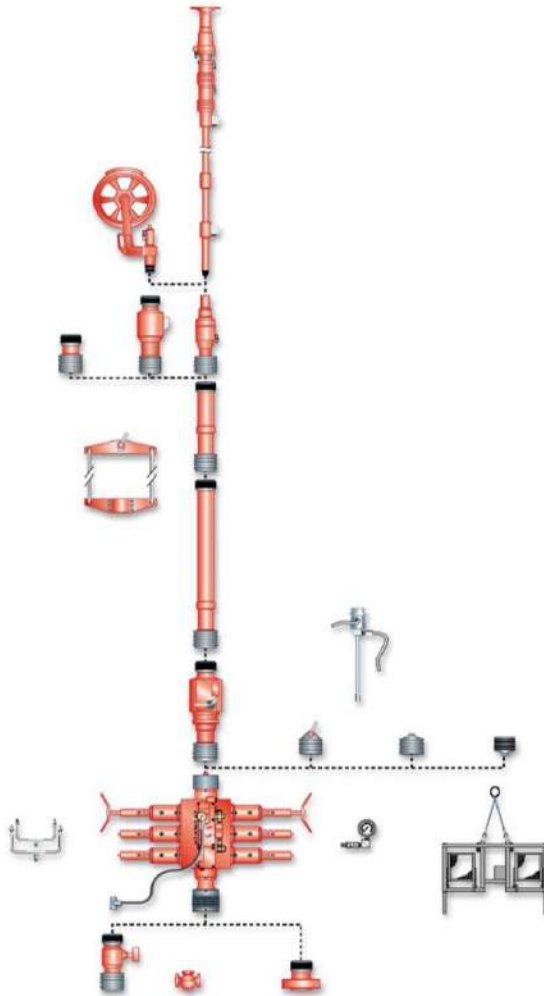
Tubing Saver

Oil States Energy Services – Ball Launcher

- Controlled aperture ball drop mechanism for multi-stage well stimulation operations
- Multiple detection devices for drop confirmation
- Capable of handling 28+ balls ranging from $\frac{3}{4}$ " to $4\frac{3}{4}$ "
- Our patented controlled aperture ball drop mechanism makes it impossible to drop a ball out of sequence.
- Positioned outside of the fluid stream
- Ball stacks are loaded by the tool hand and company rep. Gauging the balls as they are loaded.
- The frac is pumped through the multi-port frac head. Balls are dropped on top of the remote valve in the pump-in sub. This is done by signaling the aperture to open enough to allow one ball to drop at a time.
- Once the frac is flushed, the remote valve is opened to allow the ball to enter the frac stream. Positive pressure is applied through the pump-in sub for a few minutes. The remote valve is then shut. Frac of the next zone commences with the launched ball located in the pad fluid.
- Pressure Rating: 15,000 psi, CSA Class 1 Div. 2 Rating



Oil States Energy Services – Wireline Support



Oil States Energy Services – Wireline Support

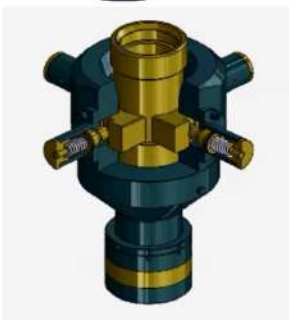
Pressure Control Package

- OSES provides wireline pressure control with customized solutions for specific operational needs in mind. Our wireline valves are configurable to suit the needs of our customers.
- OSES also offers a wide range of fishing tools and ancillary services commonly needed in slickline or e-line operations.
- Our Pressure Control Packages are equipped with the following components:
 - Flanges and Swages
 - Pump In Sub
 - Wireline Valves
 - Tool Trap
 - Quick Test Sub
 - Lubricator
 - Head Catcher
 - Velocity Ball Check Valve
 - Grease Head
 - Slick Line Stuffing Box
 - Line Wiper
 - Grease Injection Units
 - Pressure Test Unit
- Available Sizes: 3" – 8.25"
- Pressure Ratings: 5,000 psi – 15,000 psi



Hydraulic Latch Assembly

- The hydraulic latch assembly is designed to provide a hydraulic activated latching mechanism which permits safe and rapid make-up of surface pressure equipment components. This union facilitates the assembly of large size Wireline Valves and Wireline Pressure Control Equipment to each other or to the wellhead.
- Optional Hydraulic Night Cap and Ball Drop System are available.
- Available Size: 5-1/8"
- Pressure Ratings: 10,000 – 15,000 psi



Top Entry Package

- The Top Entry System allows wireline tools direct entry into the pipe string. The wireline entry bore is collinear with the pipe bore allowing longer tools unrestricted entry into the well through a wireline quick union.
- There is no need to break the drill pipe or tubing connection to enter or exit the well. Wireline pressure control systems ranging from 5,000 psi packoffs to 15,000 psi grease injection heads may be run with this system.
- When used with top drive systems, wireline steering tools may be easily admitted and retrieved from the string.
- Once assembled, wireline tools have direct entry into the pipe string which eliminates the need to separate and re-connect the pipe string for each run. When run in conjunction with the Locking Swivel, both make-up and reverse torque can be applied and held with the top drive. This eliminates the need to use a back up tong for holding torque and increases safety on the rig floor.
- The Oil States Energy Services Locking Swivel utilizes a hydraulically actuated spline shaft which provides 83 separate orientations per revolution. This innovation allows the pipe to be worked or oriented as with a conventional swivel but then locked in place. By trapping torque or holding orientation with the top drive's brake, back up tongs and the hazards associated with their use can be eliminated
- Available Sizes: 3-1/2" – 6-5/8"



Oil States Energy Services – Production Services



Pumping Services

- OSES has a fleet of skid mounted pumps that are rated in a variety of fluid rates and pressures.
- Additionally, these pumps are all self-contained units that are skid mounted and easily transported from our facility to your job site.
- Many of the pumps are available with configurable piston and liner construction or plungers with non-adjustable type packing.



Product Description	Horse Power	Plunger Size	Max Flow @ Rated PSI	Foot Print / Weight
H-500 (Demay)	750	4"	1.795 bpm @ 15,000 psi	7' 0" x 19' 0" / 25,500 lbs. (Split Unit)
GD C500	500	2.5"	1.0 bpm @ 15,000 psi	8' 0" x 10' 0" / 21,000 lbs. (Single Unit)
NAT 634	500	3"	1.30 bpm @ 15,000 psi	8' 0" x 11' 0" / 21,000 lbs. (Split Unit)
HT-400	500	3 3/8"	1.375 bpm @ 15,000 psi	5' 0" x 22' 0" / 23,000 lbs. (Split Unit)
OPI-600	500	2 3/4"	1.09 bpm @ 15,000 psi	8' 0" x 18' 0" / 23,000 lbs.
GD PE5	125	2 1/4"	.25 bpm @ 5,000 psi	8' 0" x 9' 0" / 14,000 lbs.
GD-TEE	165	2 1/4"	.25 bpm @ 7,500 psi	8' 0" x 9' 0" / 14,000 lbs.
HP 950	175	1 1/4"	30 gpm @ 7,200 psi	6' 6" x 10' 10" / 9,960 lbs.
HP 950	175	7/8"	17 gpm @ 15,000 psi	6' 6" x 10' 10" / 9,960 lbs.
J 100	100	1 1/4"	29 gpm @ 5,000 psi	5' 0" x 7' 0" / 7,500 lbs.
J 100	130	1 3/4"	29 gpm @ 2,780 psi	12' 0" x 7' 0" / 7,200 lbs.
HP 550	80	5/8"	8.36 gpm @ 20,000 psi	4' 0" x 7' 6" / 6,000 lbs.
HP 550	80	5/8"	8.36 gpm @ 15,000 psi	5' 8" x 8' 0" / 6,000 lbs.

Pump Trucks

- OSES maintains a fleet of trailer mounted pumps for testing, displacement, FIT, MIT, and many other operations.
- The pump truck carries a SPM TSW600 600 Horsepower pump with either 3-1/2" or 4" plungers and can pump from 10 BPM @ 2,500 psi to 2 BPM @ 10,000 psi.
- The double pumper is equipped with twin 600HP Triplex pumps with 4" plungers and can pump up to 2 BPM @ 15,000 psi.
- Additionally, the double pumper is equipped with a Lime Instruments Data Acquisition System which can provide customizable metrics for the customer. Another key feature of this system is that it instantly turns on as soon as the pumps are started for no data loss protection.



Tubular Rentals & Rig Support Equipment

- OSES carries H₂S grade T-95 and L-80 works strings as well as the most common P-110 grade and Range 2 Double White Band Premium Spec API.
- Our most common sizes available:
 - 2-3/8" PH-6, P-110 5.95 lb per ft with a drift of 1.773.
 - 2-7/8" PH-6, P-110 7.9 lb per ft with a drift of 2.229.
- Also available are the MYT, YT and HYT Elevators and Bowl and Slips to handle the pipe along with all TIW or Kelly Valves, Pup Joints and Drifts, Rabbits and Stabbing Guides.
- OSES also carries Laydown Machines. These units are trailer mounted and are powered by Yanmar diesel engines. Our machines can laydown pipe from 2-3/8" – 9-5/8" with up to a 55' reach.



Blow Out Preventer

- OSES provides a complete line of blowout preventers and supplemental equipment for work-over, coil tubing, and snubbing applications.
- Our BOP inventory consists of all the major brand names in both annular and ram-types.
- Single and Dual Hydraulic Rams are available.
- From tandem booster and shear bonnets to work plates and Shaffer ram carriers, we can provide our customers a complete protection package. To maximize time efficiency in the field, we specialize in quick rig-ups with unique "5 Ram Stacks". Complete with work baskets, control panel, and surge bottle.
- Sizes Available: 3-1/6" – 13-5/8"
- Pressure Rating: 3,000 – 15,000 psi



Oil States Energy Services – Thru Tubing



Tempress HydroPull™

- Pulls tubing into long tortuous wells, reduces plug milling time and can eliminate the need for friction reducing chemicals providing efficiency and cost savings measures to any completions program.
- Routine entry of over 12,000' horizontals
- Fewer short trips required by maximizing sweep effectiveness.
- Highly reliable. Over 99.9% downhole success rate.
- Polymer gel and nitrogen compatible. Also effective on commingled fluid for depleted well service.
- Sizes Range from 1.69" – 3.12" and up to 6 BPM

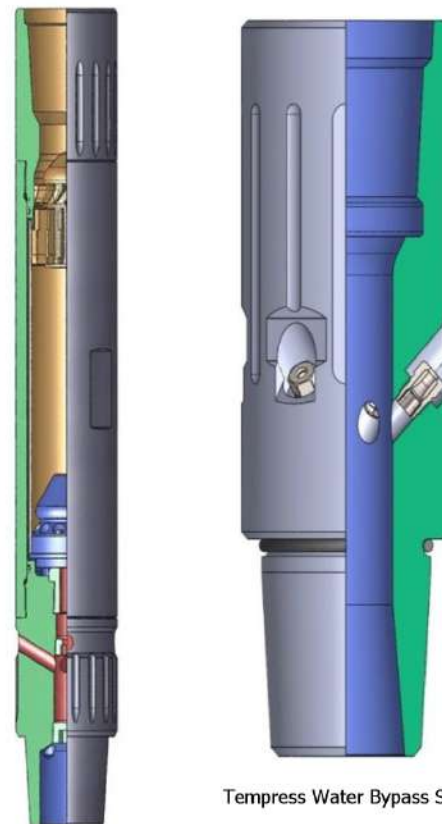


HydroPull® Extended Reach Model- Simplified Well Profile		Enter All Blue Data	© Tempress OSES 2017
Performance Software is designed specifically for use with Tempress® tools only			
Well Designation & Data		Well Name	rev/0017
Well Data	Select units	US Units	
	Kickoff point (TVD)	0.000	ft
	End of curve/landing point (TVD)	10.000	ft
	Flow depth (TVD)	0.000	ft
	Measured Depth (MD) (closed-in)	20.000	ft
	ID of casing in vertical and curve	4.67	in
	Lateral ID (closed or open hole)	4.67	in
	Average dog leg severity in horizontal	1	°/100 ft
Working (Separate Tab)	Static friction coefficient	0.24	21 for pipe-on-pipe friction reducer, with no FR, 30 if no coil straightener
	Coil OD	2.000	in
	Coil Wall Thickness	0.100	in
	Minimum flow ID in motorhead	0.70	in
BHA	HydroPull® tool diameter	2.80	in
	HydroPull® Configuration (Flow, Impact Rating)	Standard Flow, High Impact	
	# of Nozzle Ports (Set, Subseal)	6	see Tempress Nozzle Sizes
	Port diameter	0.375	in
	Tempress® Water Egress Sub	No	
	No-load motor pressure (see Motor Data Tab)	60	psig 0 if no motor
Operating Parameters	On-off bottom motor pressure differential	750	psig 0 if no motor
	Pump flow rate	3.00	gpm
	Maximum Weight on Bit	500	lbf
	Wellhead circulating pressure (choke)	100	psi gauge
	Fluid friction reducer effect	50%	% reduction
	Est. fluid loss to L or gained from (+) formation	0.34	mgm Spec. Gravity: 1.00
Results	Fluid density	0.90	g/cm³ Default is 0
	Total BHA pressure drop	1300	psi differential
	Pump pressure (shilling/rolling)	3490	psi
	Bottomhole circulating pressure (BHCP)	4309	psi
	Wellhead snubbing force	360	lbf
	Hydraulic Lift-off force	175	lbf
	Water hammer pulse in annulus	187	psi differential
	Water hammer pulse in work string	1036	psi
	Minimum rupture disk rating	3747	psi
	Impact force at BHA	7160	lbf
	Fluid velocity in horizontal section	219	ft/min OK
	Vertical cuttings transport ratio (1-min sand)	74%	OK
	Water Flow to Motor	3.0	gpm
	Water By-pass (if VBS selected)	-	gpm
	On-Off Bottom Motor Flow Variation w/FR	-	
	Maximum coil feed rate at toe of well	17	ft/min
	Coil lockup MD without HydroPull®	15245	ft
	MD with HydroPull®	21958	ft
	Reach increase due to HydroPull®	6713	ft



Tempress Technologies

- Tempress provides many technologies to the market.
- The **Tempress Motor Gas Separator (MGS™)** is the most effective downhole phase separator in the industry. With high-efficiency gas separation we can remove free nitrogen from the commingled flow stream and preserve stator life.
- Available sizes range from 1.69" – 3.38" and up to 6.0 bpm.
- The **Tempress Water Bypass Sub** is a customizable tool that has two to six ports that are interchangeable carbide inserts which provide consistent results in desired flow rate.
- Available sizes range from 1.69" – 3.50"

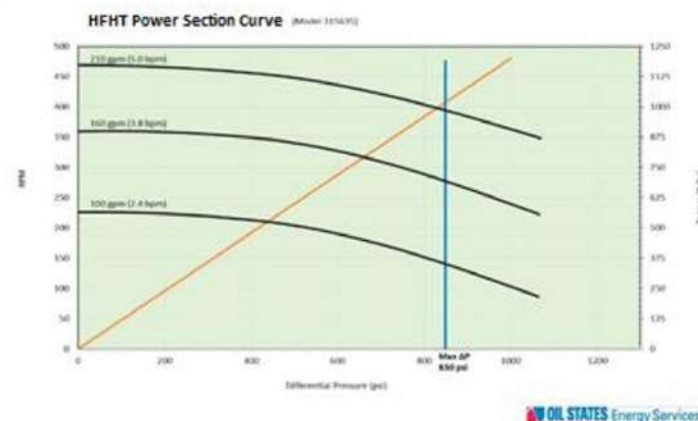
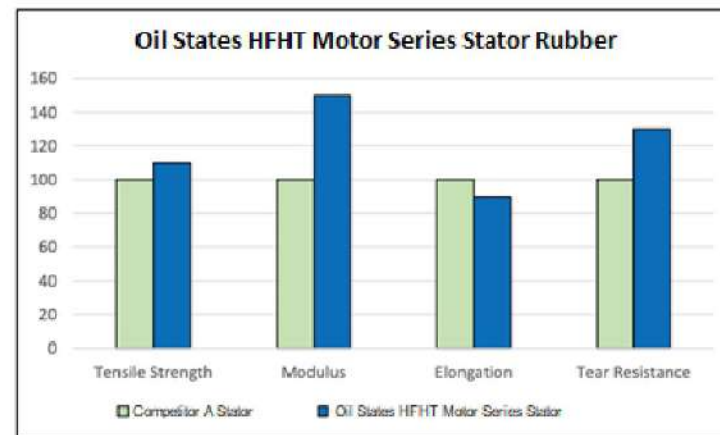


Tempress Motor Gas Separator

Tempress Water Bypass Sub

HFHT Motors

- The HFHT motor series is the industry's most reliable thru tubing motor.
- The proprietary design provides higher power output per unit length. Additionally, the short length (8.25' - 13.34') enables the assembly to pass through tortuous build sections and high dog leg laterals for consistent, one-run performance.
- Compatible with a broad range of water and oil-based fluids making it applicable in almost all coiled tubing and jointed pipe well service jobs including nitrogen and carbon dioxide energized fluids.
- Available sizes range from 1.69" – 3.12" and up to 6 BPM.



HFHT 3.12" 5/6 Power Section Curve

Fishing & Milling Services

- OSES carries a full line of tools and accessories to address various removal systems that efficiently and effectively eliminate any wellbore obstruction.
- Fishing and milling services include the following equipment:
 - Bottom Hole Assemblies
 - Circulating Subs
 - Torque Knuckle Joints
 - Over Shots
 - Wash Tools
 - Mills
 - Tubing Cleaners



Oil States Energy Services – Falcon Flowback Services



Flowback / Well Testing

- Falcon is a solutions-based provider of best-in-class equipment and highly skilled personnel. Delivering cutting edge technology and customizable setups tailored to customer specific needs.
- Our equipment is available in a variety of sizes and pressure ratings and can be manual or hydraulic in operation.
- Available Equipment:
 - Sand Management
 - Test Separators
 - Choke Manifolds
 - Flow Iron (Hammer Union & Flanged)
 - Indirect Heaters
 - Flare Stacks
 - Flowback Tanks



Oil States Energy Services – Falcon Flowback Services

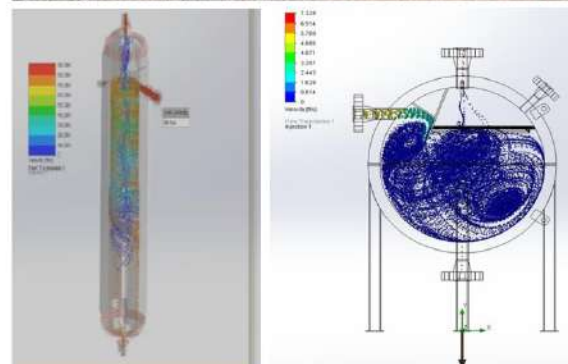
Drillout Support

- Falcon provides solutions-based configurations for frac plug drillout.
- Multiple pressure ratings and sizes of equipment are available to build the perfect surface pressure and fluid control environment for an efficient drillout operation.
- Equipment can be manual or hydraulic operation.
- Our FS3 Tank has the ability to remove the need for tank cleanout post job with our proprietary design that allows us to clean the tank without confined space entry.
- Available Equipment:
 - Plug Catchers
 - Choke Manifolds
 - Full Hydraulic Packages
 - Flowback Tanks
 - FS3 Tank
 - Sand X®
 - Super Loop®



Sand Control

- Falcon is an industry leader in sand management.
- Our sand management assets offer technology driven solutions for all phases of well sand production.
- **Standard Impingement**
 - Pressure Rating: 3,000 – 15,000 psi
- **Cyclonic**
 - Pressure Rating: 5,000 – 10,000 psi
- **Spherical**
 - Pressure Rating: 5,000 – 10,000 psi



Q&A