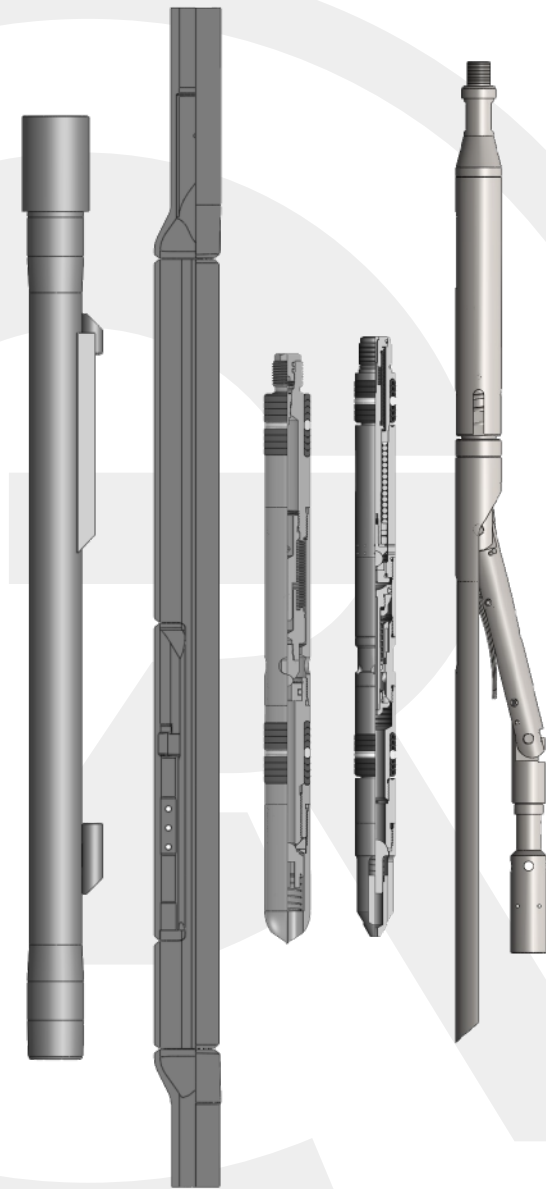




OIL PRODUCTS
WELL COMPLETIONS



Oilfield

Gas Lift System

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Gas Lift System

SAZ Oilfield offers a complete portfolio of Gas Lift Valves & Mandrels in different metallurgy and configuration to cater to a wide range of well conditions. Gas Lift is a widely used method of Artificial Lift due to the versatility in its application and cost effectiveness in terms of production rate, range, depth of lift, and suitability over a wide range of well conditions. Ability to change the Gas Lift Valves via simple well intervention, allows operator to optimize production over life of the well. Highly deviated wells, with high formation Gas to Liquid Ratio and solids production are good candidates for Gas Lift.

SAZ provides both conventional & retrievable gas lift system for continuous and intermittent flow conditions. The most common valves are Injection-Pressure-Operated (IPO) and Production-Pressure-Operated (PPO) gas lift valves.

We also offer Pilot Operated gas lift valves and Single Point Injection Orifice valves.

Orion and **Sirius** family of gas lift valves and mandrels are based on field proven design and have an extensive track record globally over a wide range of downhole conditions and production scenarios.

Orion Conventional Gas Lift Valves and **Tubing Retrievable Mandrels** offer cost effective solution to customers. They are widely used on land wells where workover is frequent and economical.

Sirius Retrievable Gas Lift Valves and **Side Pocket Mandrels** provide customer flexibility to deploy various valve type over the life of the well. They are widely used on offshore wells where workover is not cost effective.

Lynx Chemical Injection Mandrel and **Valves** are used for injecting fluid chemicals to keep hydrocarbons flowing and to deliver scale and corrosion inhibitors to prevent equipment failure and downtime.

Ursa Water Injection Valves and **Side Pocket Mandrels** offer reliable option for customer's Water Flood requirements as these are manufactured with high corrosion resistance materials.

Orion Conventional Valves and Mandrels

- **Orion GM** Conventional Gas Lift Mandrel
- **Orion GV** Conventional Gas lift Valve (IPO)
- **Orion PV** Conventional Pilot Operated Valve
- **Orion CV** Conventional Check Valve

Lynx Chemical Injection Valves and Mandrels

- **Lynx CM** Conventional Chemical Injection Mandrel
- **Lynx CI** Conventional Chemical Injection Valve
- **Lynx IM** Side Pocket Chemical Injection Mandrel
- **Lynx IV** Retrievable Chemical Injection valve

Accessories

- **Sirius DV** Retrievable Dummy Valve
- **SBK, SRK** Wireline Retrievable Latches
- **SRT** Running Tool
- **SJD** Pulling Tool

Sirius Retrievable Valves and Mandrels

- **Sirius SM** Side Pocket Mandrel
- **Sirius GV** Retrievable Gas Lift Valve (IPO)
- **Sirius OV** Retrievable Orifice Valve
- **Sirius PV** Wireline Retrievable Pilot Operated Valve

Ursa Water Injection Valves and Mandrels

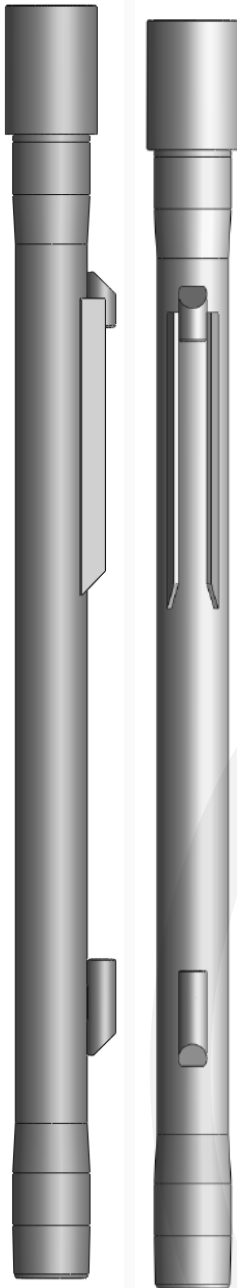
- **Ursa WM** Side Pocket Water Flood Injection Mandrel
- **Ursa WV** Water Flood Injection Valve
- **Ursa CV** Water Flood Check Valve

Orion Gas Lift Mandrel

Orion GM Conventional Gas Lift Mandrels are available in various tubing sizes, end connections and metallurgy to match the tubing and offer full drift. It is designed to receive 1.0" and 1.5" diameter conventional gas lift valves and conventional check valves. These valves are mounted externally on the mandrel which features external side guards to protect the gas lift valve and check valve.

Features

- Enhanced operational flexibility due to concentric ID
- Suitable for use in combination with Plunger Lift system
- Enable Well Intervention due to drift ID same as production tubing
- Protective Guard plates on the sides of the mandrels protects gas lift valves during running in and pull out



Orion GM Conventional Gas Lift Mandrel								
Mandrel Tubing Size (in)	ppf	Valve Size (in)	Connection	Metallurgy	Mandrel OD (in)	Mandrel ID (in)	Drift ID (in)	Mandrel Length (ft)
2-3/8	4.7	1.0	API Premium	J-55	3.783	1.995	1.901	4*
		1.5		L-80	4.283			
2-7/8	6.5	1.0		N-80	4.335	2.441	2.347	
		1.5		P-110	4.835			
3-1/2	9.2	1.0		13 Cr	5.063	2.992	2.867	
		1.5			5.562			

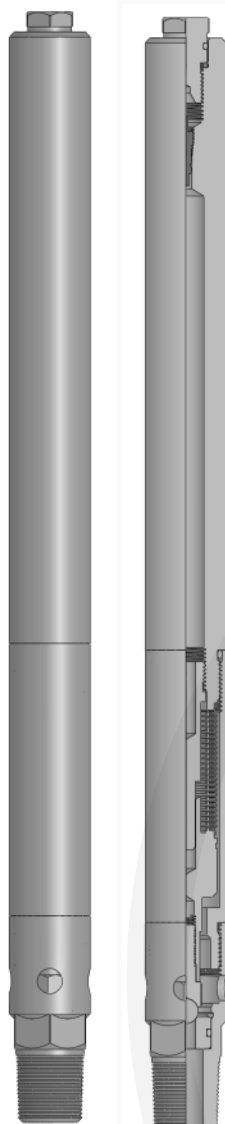
* Length without Coupling
 Please contact sales for custom sizes.

Orion Gas Lift Valve

Orion GV Conventional Injection Pressure Operated (IPO) gas lift valves are available in 1.0" and 1.5" diameter. The valve is controlled by injection gas pressure (casing pressure). The valve is installed on a conventional mandrel which is deployed on production tubing. The valve has bellows assembly that contains a nitrogen charge over damping fluid. The nitrogen charge, located inside the dome, acts on three ply MONEL bellows to hold the valve in the closed position. The valve opens when combined forces of injection gas pressure & tubing pressure exceeds the closing force, the bellows compress, lifting the valve stem off the seat, and allowing gas in the casing to be injected through the valve into the tubing.

Features

- Body material in stainless steel SS304/SS 316L, 17-4PH and Monel.
- Three-ply Monel bellows.
- Mechanical stop prevents bellows over stroke.
- Viscous fluid shear dampening prevents bellow fatigue and stem chattering.
- Tungsten Carbide ball and ball stem assembly.
- Replaceable floating Monel seat (also available in Tungsten Carbide material)
- Silver brazed bellows connections



Orion GV Conventional IPO Valve						
Size	Effective Bellow Area A_b (in ²)	Port Size (in)	Port Area A_p (in ²)	A_p/A_b	$1-(A_p/A_b)$	* $R_{tef} = (A_p/A_b)/(1-A_p/A_b)$
1.0	0.31	1/8	0.013	0.042	0.958	0.044
		5/32	0.021	0.067	0.933	0.072
		3/16	0.029	0.095	0.905	0.105
		1/4	0.052	0.166	0.834	0.199
		5/16	0.080	0.257	0.743	0.346
1.5	0.77	3/16	0.029	0.038	0.962	0.040
		1/4	0.052	0.067	0.933	0.072
		5/16	0.080	0.104	0.896	0.115
		3/8	0.114	0.148	0.852	0.174
		7/16	0.154	0.201	0.799	0.250
		1/2	0.200	0.260	0.740	0.351

A_b = total effective bellows area, in²

A_p = valve port area (ball/seat line contact area for sharp-edged seat), in²

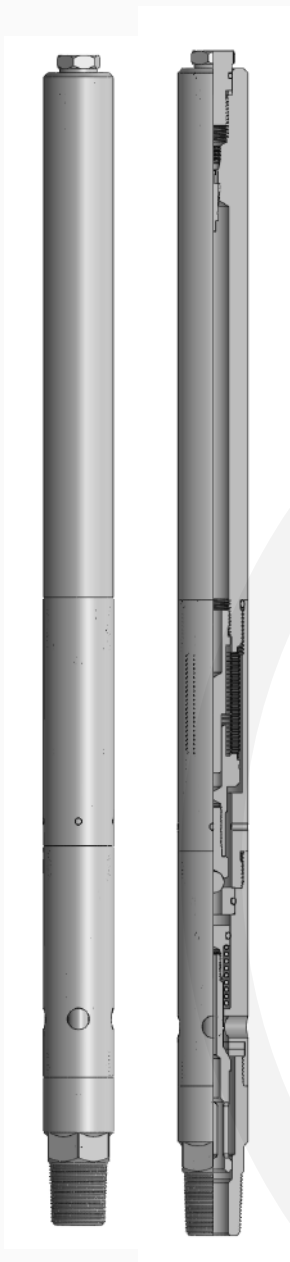
* R_{tef} = Tubing Pressure Effective Factor

Please contact sales for custom sizes.

Orion Gas Lift Valve

Orion PV Conventional Pilot-Operated gas lift valves are available in 1.0" and 1.5" diameter. The valve is controlled by injection gas pressure (casing pressure). These valves are used to control lift gas during intermittent-gas lift operations. Intermittent gas lift requires instantaneous injection of large volume of gas for short period of time to lift the fluid from point of injection to the surface.

The Pilot valve consist of pilot section and power section. This valve utilizes pilot section to activate power section. The pilot section operates in the same manner as a single-element gas lift valve with a small choke located downstream of the valve seat. The injection pressure at valve depth is exerted over the ball/seat contact area of the pilot section as an initial opening force. When the pilot section begins to open, an increase in pressure occurs between the pilot valve seat and the main valve piston. This increase in pressure above the piston results in compression of the spring under the piston, and the main valve snaps open.



Features

- Body material in stainless steel SS304/SS 316L, 17-4PH and Monel.
- Three-ply Monel bellows.
- Mechanical stop prevents bellows over stroke.
- Viscous fluid shear dampening prevents bellow fatigue and stem chattering.
- Tungsten Carbide ball and ball stem assembly.
- Replaceable floating Monel seat (also available in Tungsten Carbide material)
- Silver brazed bellows connections

Orion PV Conventional Pilot Valve	
Size (in)	Thread Connection
1.0	1/2"-14 NPT
1.5	1/2"-14 NPT

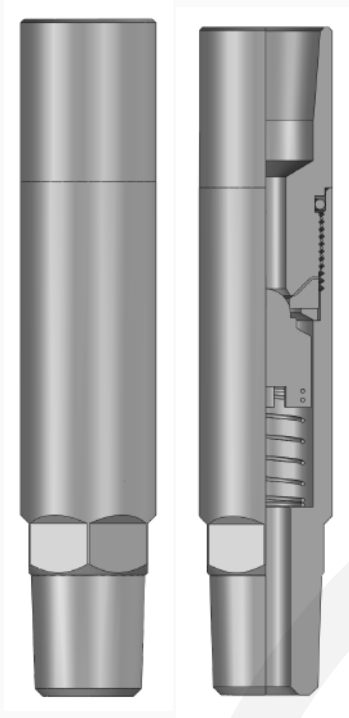
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Orion Check Valve

Orion CV Conventional Check Valve are available in 1.0" and 1.5" diameter. The Check Valve is installed externally on conventional mandrel. Check dart prevents gas and fluid flow from the tubing back into the casing annulus. An elastomeric check pad is first contacted by the check dart and as differential pressure increases, a metal-to-metal contact acts as a secondary seal. The check valve is manufactured from premium material for corrosion resistance in wells with high concentrations of H₂S and/or CO₂.

Features

- Body material in stainless steel SS304/SS 316L, 17-4PH and Monel
- Check valve back pressure rating 5,000 PSI.
- Spring material Inconel X 750.
- Compatible with other industry standard conventional (tubing retrievable) mandrels



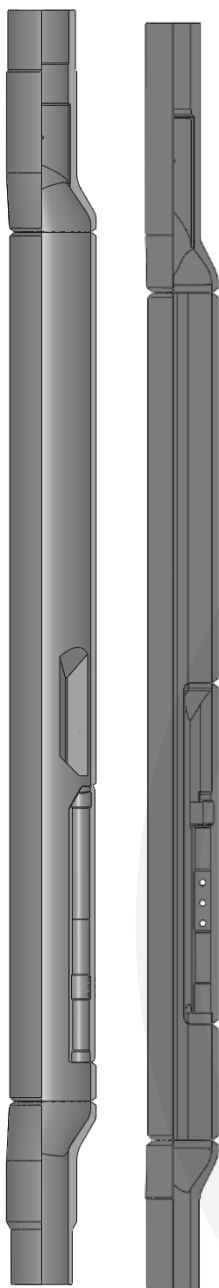
Orion CV Check Valve				
Check Valve Type	Check Valve OD (in)	Effective Port Diameter (in)	Top & Bottom Connection	Flow Direction
Spring Loaded	1.0	7/16	1/2" NPT	Annulus to Tubing
		13/32	1/2" NPT	
	1.5	1/2	1/2" NPT	

Please contact sales for custom sizes.

Sirius Gas Lift Mandrel

Sirius SM Side Pocket Mandrels are available in various tubing sizes, end connections and metallurgy to match the tubing specs and offer full drift ID. Mandrels are available in either Oval or Round Body, along with either Forged or Machined Pockets to receive 1.0" or 1.5" O.D retrievable Gas Lift Valves and Dummy Valves. These mandrels feature an integral orienting sleeve and a deflector above the forged/ machined pocket. The orienting sleeve allows option to use a positive orienting kickover tool to run and retrieve valves via slickline /wireline. Deflectors are in place to deflect and protect the GLV latch.

- Orienting sleeve has a mule shoe profile which allows precise installation and retrieval of gas lift equipment in straight and deviated wellbores
- Slim OD Mandrels available for special applications



Machined

Forged

Features

- Offset design eliminates the need to pull or re-run the tubing string to install or replace gas lift valves
- Pocket is offset from tubing ID, allowing maximum flow from tubing
- 180° Pocket Latch configuration
- Mandrels are with Orientation Sleeve
- Orienting sleeve has a mule profile which allows precise installation and retrieval of gas lift equipment in straight and deviated wellbores

Sirius SM Gas Lift Mandrel					
Tubing Size (in)	Mandrel Type	Pocket (in)	Major O.D. (in)	Minor O.D. (in)	Drift (in)
2-3/8	Oval	1.0	4.25	2.91	1.901
		1.5	4.75	4.00	
	Round	1.0	4.50	N/A	
2-7/8	Oval	1.0	4.75	4.00	2.347
		1.5	5.40	4.62	
	Round	1.0	5.00	N/A	
		1.5	5.44	N/A	
3-1/2	Oval	1.0	5.31	4.12	2.867
		1.5	5.97	5.00	
	Round	1.0	5.75	N/A	
		1.5	6.00	N/A	
4-1/2	Oval	1.0	6.41	5.50	3.833
		1.5	7.03	5.63	
	Round	1.5	7.07	N/A	
5-1/2	Oval	1.5	8.01	6.84	4.653

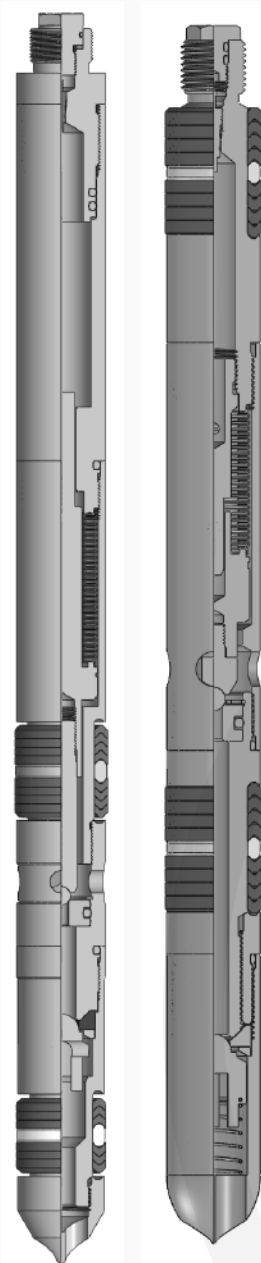
Please contact sales for custom sizes.

Sirius Gas Lift Valve

Sirius GV Retrievable Injection Pressure Operated (IPO) gas lift valves are available in 1.0" or 1.5" diameter. These valves are controlled by injection gas pressure (casing pressure). The valves are installed inside the side pocket mandrels with the help of wireline tools. The valve has a bellows assembly that contains a nitrogen charge over damping fluid. The dome charge provides the closing force of the valve. When injection gas pressure exceeds the closing force, the bellows compress, lifting the valve stem off of the seat, allowing gas to be injected through the valve and into the tubing. The valve has an integral back check device which prevents gas and fluid flow from the tubing back into the casing annulus.

Features

- Body material in stainless steel SS304/SS 316L, 17-4PH and Monel
- Standard packing material Neoprene others are also available.
- Three-ply Monel bellows
- Mechanical stop prevents bellows over stroke
- Viscous fluid shear dampening prevents bellow fatigue and stem chattering
- Tungsten Carbide ball and ball stem assembly
- Replaceable floating Monel seat (also available in Tungsten Carbide material)
- Silver brazed bellows connection



Size 1.5"

Size 1"

Sirius GV Retrievable IPO Valve							
Size (in)	Latch Type	Effective Bellow Area A_b (in ²)	Port Size (in)	Port Area A_p (in ²)	A_p/A_b	$1-A_p/A_b$	* $R_{tef}(A_p/A_b)/(1-A_p/A_b)$
1.0	SBK	0.31	1/8	0.013	0.042	0.958	0.044
			5/32	0.021	0.067	0.933	0.072
			3/16	0.029	0.095	0.905	0.105
			1/4	0.052	0.166	0.834	0.199
			5/16	0.080	0.257	0.743	0.346
			3/8	0.114	0.368	0.632	0.582
1.5	SRK	0.77	3/16	0.029	0.038	0.962	0.040
			1/4	0.052	0.067	0.933	0.072
			5/16	0.080	0.104	0.896	0.115
			3/8	0.114	0.148	0.852	0.174
			7/16	0.154	0.201	0.799	0.250
			1/2	0.200	0.260	0.740	0.351

A_b = total effective bellows area, in²

A_p = valve port area (ball/seat line contact area for sharp-edged seat), in²

* R_{tef} = Tubing Pressure Effective Factor

Please contact sales for custom sizes.

Sirius Orifice Valve

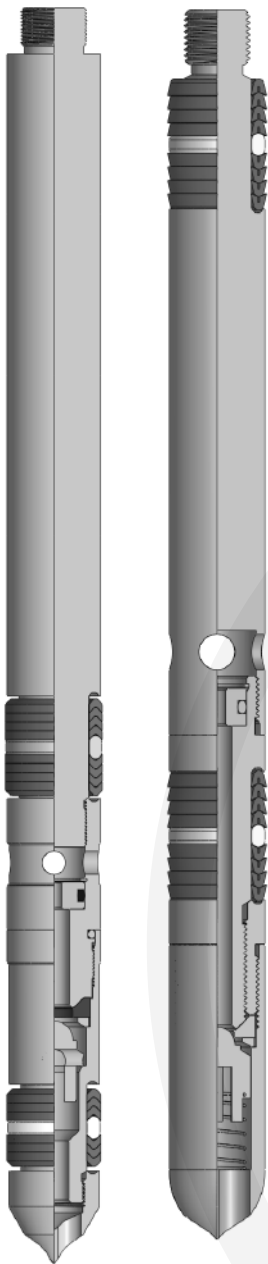
Sirius OV Retrievable Orifice Valves are used to control the flow of gas from the casing annulus into the tubing. The valves are installed inside the side pocket mandrels. The valve is designed with a square edged orifice which, when properly sized, allows volume control when the casing and tubing pressures are known. An integral reverse flow check valve prevents gas and or fluid from flowing from the tubing back into the casing annulus. The valve consists of a flow barrel, seat housing and floating square edged orifice, lower packing retainer, and check nose with a reverse flow check drop. Gas and/or fluids that are injected into the casing annulus enter the ports in the side pocket mandrel. This gas and/or fluid then enter through the ports in the valve that is located in the flow barrel between the two sets of packing. The gas and/or fluid then flows through the seat housing and square edged orifice, past the reverse flow check drop, through the check nose and into the tubing.

Features

- Replaceable square edged orifice (Tungsten Carbide available)
- Flow capacity determined by orifice sizing.
- Integral reverse flow check valve.
- Compatible with standard 1.0" (SBK) and 1.5" (SRK) latches.
- Standard packing material Neoprene; others are also available

Sirius OV Orifice Valve		
Size (in)	Latch Type	Port Size (in)
1.0	SBK	3/16
		1/4
		5/16
1.5	SRK	3/16
		1/4
		5/16

Please contact sales for custom sizes.

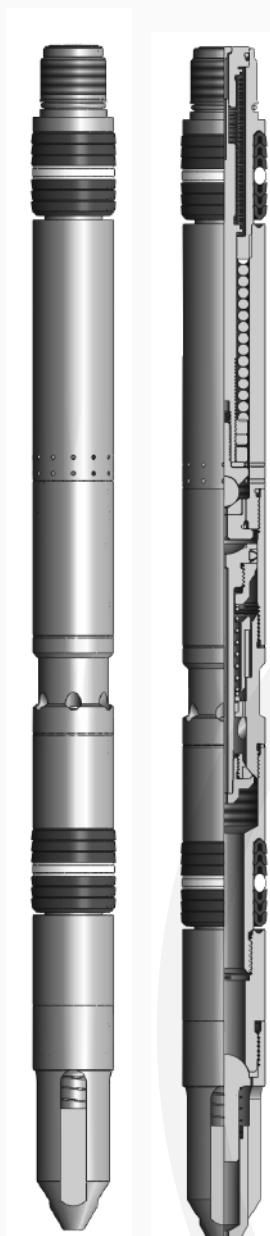


Size 1.5"

Size 1"

Sirius Pilot Operated Valve

Sirius PV Retrievable Pilot Operated gas lift valves are used in Intermittent flow gas lift application. During Intermittent gas lift operations, the valve controls gas pressure and its flow from the casing annulus into the tubing. A slug of fluid is displaced from the injection point to the surface. The valve maintains a large primary injection port since Intermittent gas lift requires a large volume of gas to be injected rapidly into the tubing for a short period of time to displace fluid. The control of gas during this cyclic operation is enhanced by the valve's ability to control the spread (difference in valve opening and closing pressure). The valve uses nitrogen charged bellows to provide the closing force.



Features

- Small spread between the opening and closing pressure
- Control ports optimize the Injection cycle by controlling the valve spread
- Maximizes production rates in Intermittent gas lift application
- Enables high volume gas injection through large flow area
- Available in various metallurgies to suit different environment

Sirius PV Retrievable Pilot Valve		
Valve Type	Latch Type	Valve OD (in)
Sirius PV	SBK	1.0
	SRK	1.5

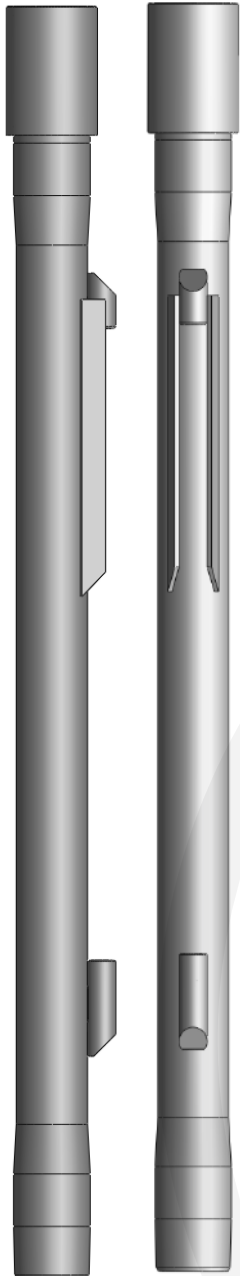
Please contact sales for custom sizes.

Lynx Chemical Injection Mandrel

Lynx CM Conventional Chemical Injection Mandrels are available in various tubing sizes, end connections and metallurgy to match the tubing and offer full drift. It is designed to receive 1.0" and 1.5" diameter conventional chemical injection valves and conventional check valves. These valves are mounted externally on the mandrel which features external side guards to protect the chemical injection valve and check valve.

Features

- Enhanced operational flexibility due to concentric ID
- These mandrels are also used to inject water to inhibit salt formation in the tubing string.
- Enable Well Intervention due to drift ID same as tubing ID.
- Protective Guard plates on the sides of the mandrels protects chemical injection valves during running in and pull out



Lynx CM Conventional Chemical Injection Mandrel								
Mandrel Tubing Size (in)	ppf	Valve Size (in)	Connection	Metallurgy	Mandrel OD (in)	Mandrel ID (in)	Drift ID (in)	Mandrel Length (ft)
2-3/8	4.7	1.0	API Premium	J-55	3.783	1.995	1.901	4 w/o coupling
2-7/8	6.5	1.0		L-80	4.335	2.441	2.347	
3-1/2	9.2	1.0		N-80 P-110 13 Cr	5.063	2.992	2.867	

Please contact sales for custom sizes.

Lynx Chemical Injection Valve

Lynx CI Conventional Chemical Injection Valves are used for injection of corrosion inhibitors and chemicals to prevent corrosion of the tubing and downhole tools. It is a spring loaded valve installed on a conventional mandrel and deployed on tubing. Injection rate of the valve is adjusted by the port size and tension of the power spring. The preset power spring keeps the valve in closed position.



Features

- Inconel power spring and check-valve spring to withstand corrosive environment.
- Spring Loaded integral reverse-flow check valve prevents tubing-to-casing annulus communication during operation.
- Simple design increases the flow efficiency.
- Tungsten Carbide ball and insert seat (standard) offer high abrasion and impact resistance for a robust and stable injection system
- Available in 316L Stainless Steel, Monel or Inconel material.

Lynx CI Conventional Chemical Injection Valve		
Size (in)	Top Connection	Port Size (in)
1.0	1/4" NPT	1/8
		3/16
		1/4

Please contact sales for custom sizes.

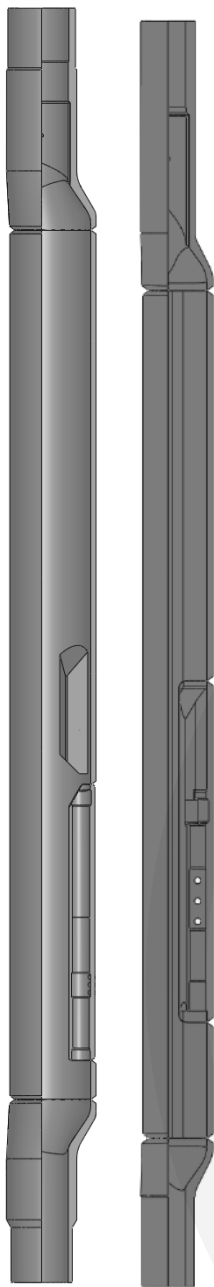
Lynx Chemical Injection Mandrel

Lynx IM Side Pocket Chemical Injection Mandrels are available in various tubing sizes, end connections and metallurgy to match the tubing and offer full drift. Oval/Round Body Mandrel configuration is designed to provide a full opening tubing drift and receives 1.0" or 1.5" O.D Retrievable chemical injection valves and check Valves. These mandrels feature an orienting sleeve and a deflector above the forged pocket. The orienting sleeve allows an option to use a positive orienting kickover tool to run and retrieve valves via slickline /wireline.

Deflectors are in place to deflect and protect the valve latch.

Features

- Offset design eliminates the need to pull or re-run the tubing string to install or replace gas lift valves
- Pocket is offset from tubing ID, allowing maximum flow from tubing
- 180° Pocket Latch configuration
- Mandrels are with Orientation Sleeve
- Orienting sleeve has a mule profile which allows precise installation and retrieval of gas lift equipment in straight and deviated wellbores



Machined

Forged

Lynx IM Chemical Injection Mandrel					
Tubing Size (in)	Mandrel Type	Pocket (in)	Major OD (in)	Minor OD (in)	Drift (in)
2-3/8	Oval	1.0	4.31	2.91	1.901
	Round	1.0	4.50	N/A	
2-7/8	Oval	1.0	4.75	4.03	2.347
	Round	1.0	5.00	N/A	
3-1/2	Oval	1.0	5.31	4.03	2.867
	Round	1.0	5.75	N/A	

Please contact sales for custom sizes.

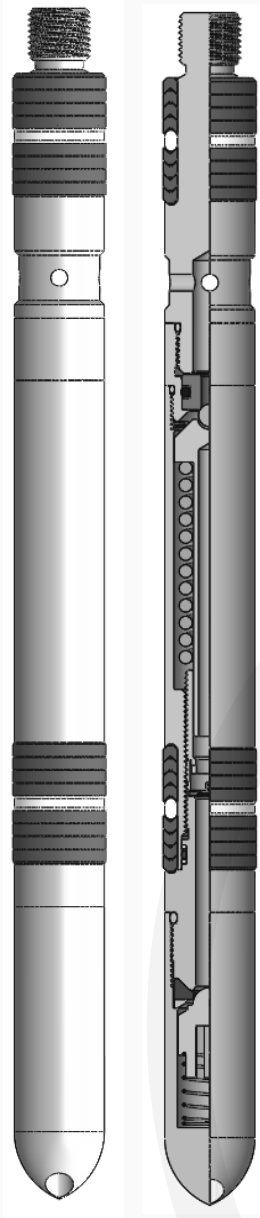
Lynx Chemical Injection Valve

Lynx IV Retrievable Chemical Injection Valves are available in 1.0" or 1.5" diameter. These valves are used to control the injection of chemicals for treatment of harmful deposits and corrosion in tubing and around downhole tools. These valves are installed in Lynx SP Side Pocket Chemical injection Mandrels using SKT kickover tool.

Lynx IV used in wells that require the continuous or intermittent injection, via the casing annulus or the injection-control line, of corrosion inhibitors or other chemicals to treat corrosion or harmful deposits in the tubing and around downhole tools.

Features

- Body material in stainless steel SS304/SS 316L, 17-4PH and Monel
- Inconel Power Spring
- Tungsten Carbide ball and ball seat assembly.
- Integral reverse-flow check valve prevents tubing-to-casing annulus communication during operation.

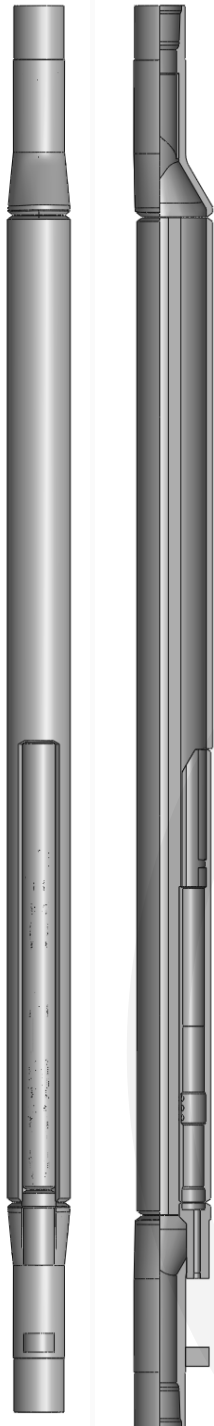


Lynx IV Retrievable Chemical Injection Valve		
Size (in)	Latch Type	Port Size (in)
1.0	SBK	1/8
		3/16
		1/4

Please contact sales for custom sizes.

Ursa Water Flood Mandrel

Ursa WM Water Flood Side Pocket Mandrels are single pocket mandrels that accept 1.5" diameter water flood devices. These side pocket mandrels are available in variety of tubing connection sizes and are used in single string, multi zone fluid injection/water flood installations. These mandrels have an outlet port at the bottom of the side pocket, protecting the casing from high-velocity turbulence associated with water flood process. Non retrievable check valve is attached directly to the outlet port to prevent back flow from the annulus to the tubing through the empty pocket when the water flood flow regulator is removed.



Features

- Machined Pocket is offset from tubing ID which allows the maximum flow from tubing
- Orienting sleeve has a mule profile which allows precise installation and retrieval of equipment in straight and deviated wellbores
- Pockets combined with deflectors protects gas lift equipment from damage
- Mandrels are available in 4140/4130 and 13 Cr material
- Mandrels can be furnished in either API threads or premium connections
- Guard protector protects the pocket port thread from damage
- Round body design is available for high pressure applications

Ursa WM Water Flood Mandrel					
Tubing Size (in)	Mandrel Type	Pocket (in)	Major O.D. (in)	Minor O.D. (in)	Drift (in)
2-7/8	Oval	1.5	5.50	4.62	2.347
	Round		5.44		
3-1/2	Oval	1.5	5.96	5.00	2.867
	Round		6.00		

Please contact sales for custom sizes.

Ursa Water Flood Valves

Ursa WV Water Flood Valves are used in water injection (water- flood) applications. These valves are designed to ensure a constant flow rate into each zone, independent of pressure changes in the reservoir or in the surface pressure system. Water is injected down a single tubing and distributed in a controlled manner into different zones by the valves. These valves are used with side pocket mandrels.



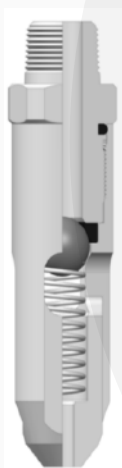
Features

- Easy redress of the valve
- Flow variation by changing orifice with different port sizes
- Compatible with SRK and SBK latches
- Metallic screen on top of the valve to filter debris
- Valves are available in different alloy steel for sour services
- Valves feature integral check valves
- Flow configurations are available inside and bottom exit

Ursa WV Water Flood Valve			
Nominal Size (in)	Max OD (in)	Total Length (in)	Top Connection
1.50	1.50	15.5	1-1/16"-18 UNEF

Please contact sales for custom sizes.

Ursa CV Water Flood Check Valves are designed to connect on bottom of the side pocket mandrel to prevent back flow from the reservoir.



Features

- Simple design
- Viton Seals
- Stainless Steel Body
- Ceramic check balls are also available

Ursa CV Water Flood Check Valve	
Normal Size (in)	Top Connection
1.0	1/2" - 14 NPT
1.5	3/4" - 14 NPT

Please contact sales for custom sizes.

Accessories

Sirius DV Dummy Valves are Wireline Retrievable isolation tools designed to install in a side pocket mandrel to blank off the pocket to prevent communication between tubing and annulus. This allows pressurizing of the tubing or casing for setting packers, testing, stimulation and self flow prior to the need for gas lift valves. The simple design of the Dummy Valve allows for easy replacement of the gas lift valve for redressing. Dummy Valves can also be used to hang-off Memory Gauges for reservoir pressure monitoring. Both equalizing and non-equalizing type Dummy Valves are available. The rugged, solid construction and premium materials assure a long service life.



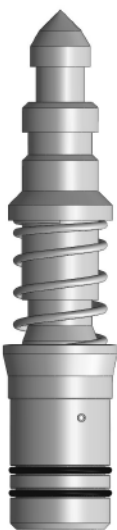
Features

- Body material in stainless steel SS304/SS 316L, 17-4PH and Monel
- Standard packing material Neoprene others are also available.
- Compatible with standard 1.0" (SBK) and 1.5" (SRK) latches.
- Compatible with Sirius GM Side Pocket Mandrels

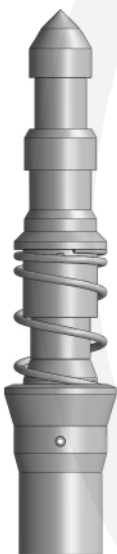
Sirius DV Dummy Valve	
Size (in)	Latch Type
1.0	SBK
1.5	SRK

Please contact sales for custom sizes.

SAZ SBK and SRK Wireline Retrievable Latches are designed to secure retrievable gas lift valves and any other flow control devices, such as chemical injection valves and water flood valves, into the appropriate side pocket mandrels. equipped with 1" or 1.5" outside diameter receiver pockets. All the running post and bodies for the **SBK** and **SRK** model latches are drilled and pinned.



SRK



SBK

Features

- Available in SS316/SS316L, SS304 and Monel
- Latch design allows valves to be pulled and serviced or replaced without pulling the whole tubing
- 1.5" OD latch includes two O-rings that provide a barrier against fine sands and debris thereby protecting the latch from getting stuck during retrieval.
- Compatible with pulling tools, gas lift valves and side pocket mandrels.
- Springs are available with Inconel Alloy to prevent scale buildup and enhance erosion resistance

Wireline Retrievable Latches							
Pocket Size (in)	Lug Profile	Model	Locking Profile	Pulling Neck OD (in)	Running Neck OD (in)	Running Tool	Pulling Tool
1.0	180°	SBK	Ring Type	0.875	0.750	SRT	1-1/4" SJDC
1.5	180°	SRK	Ring Type	1.185	0.937	SRT-1	1-5/8" SJDS

Accessories

SRT Running Tools are wireline accessories to run and install 1.0" and 1.5" diameter devices inside the side pocket mandrels. These running tools consist of a fishing neck, a pin thread connection on the top end and a skirt on the lower end which attaches to the gas lift device with shear pins.



SRT

SRT-1

Running Tool				
Running Tool Type	Top Connection	Fishing neck (in)	Maximum OD (in)	Device Size (in)
SRT Running Tool	Ø15/16-10 UNS 2A	1.187	1.25	1.0
SRT-1 Running Tool		1.187	1.45	1.5

SJD Pulling Tools are wireline accessories designed to pullout retrievable devices with outside fishing necks. These tools are available with three different core lengths, which enable the tools to retrieve subsurface devices with fishing necks of different reach lengths. The SJD series pulling tools use the D sub, which is made up to the core of the tool. The dogs, which are mounted on the skirt are inserted into the vertical openings in the skirt. The dogs are spring loaded and have grooves located in the windows on the skirt. The pulling tool can be released in the event that the subsurface device cannot be freed by continuous downward jarring. Three types of SJD series tools are used and differ only by their core length, which is selected according to the reach required.

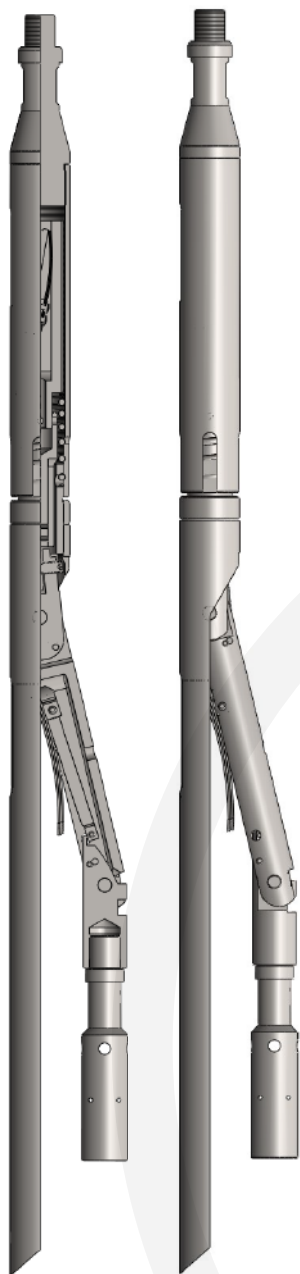


Features

- **SJDC** long core/short reach
- **SJDS** intermediate core/intermediate reach
- **SJDL** short core/long reach
- All other parts of each tool are identical and entirely interchangeable

Accessories

SKT Kickover Tools are used to install and retrieve flow-control devices in side-pocket mandrels that have an integral orienting sleeve. The SKT series tools are run into the well using standard wireline techniques. The orienting sleeve aligns the kickover tool above the side pocket, enabling precise installation or retrieval of flow-control devices for gas-lift, chemical-injection, and waterflood applications.



Kickover Tool		
Model	Valve OD (in)	Tubing OD (in)
SKT-1	1.0	2-3/8, 2-7/8, 3-1/2, 4-1/2
SKT-1.5	1.5	3-1/2, 4-1/2, 5-1/2



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