



OUR VISION

**Solves Your Greatest
Engineering Challenges**

What we do

PETROCO provides technological solutions in rubber and special elastomer parts and assemblies, adapted to the requirements of each customer or application. Iranian engineers and scientists graduated from Sharif University of technology, develop the future of oilfield technology in iran.



PETROCO
rubber-metal professionals

Slat Type Inflatable Elements



A slat-type inflatable element includes a plurality of longitudinal metal ribs on the exterior thereof which are partially overlapping to allow expansion of the packer element while providing a barrier against extrusion. The slat type construction is recommended for single set operations where the tool is released from the running string and must be capable of staying in position without sliding. Our retrievable packers incorporate an inflatable packing element that is sized to pass through the production tubing, pack off the casing below, and then return back to its original size when deflated. Thru-tubing retrievable packers let you reliably conduct your intervention operations, all while leaving the completion in the wellbore.

Applications

- Acidizing
- Fracturing
- Cementing
- Testing applications
- Chemical stimulation, inhibition, and water shutoff treatments
- Pressure testing operations
- Temporary and permanent zonal abandonments

Features, Advantages and Benefits

- High-expansion ratio up to 3:1
- Increasing production rate up to 5:1
- Saving rig time up to 1:5
- Saving money up to 1:10
- Provides the ability to perform jobs without pulling the production tubing and killing the well
- Element can be custom manufactured according to casing size, temperature, corrosion and other well conditions. Elements are constructed with slat-type reinforcements with fully covered or partially exposed
- High differential pressure capabilities in high temperatures
- Can be used in vertical, deviated, and horizontal applications
- Provides excellent open-hole or cased-hole zonal isolation

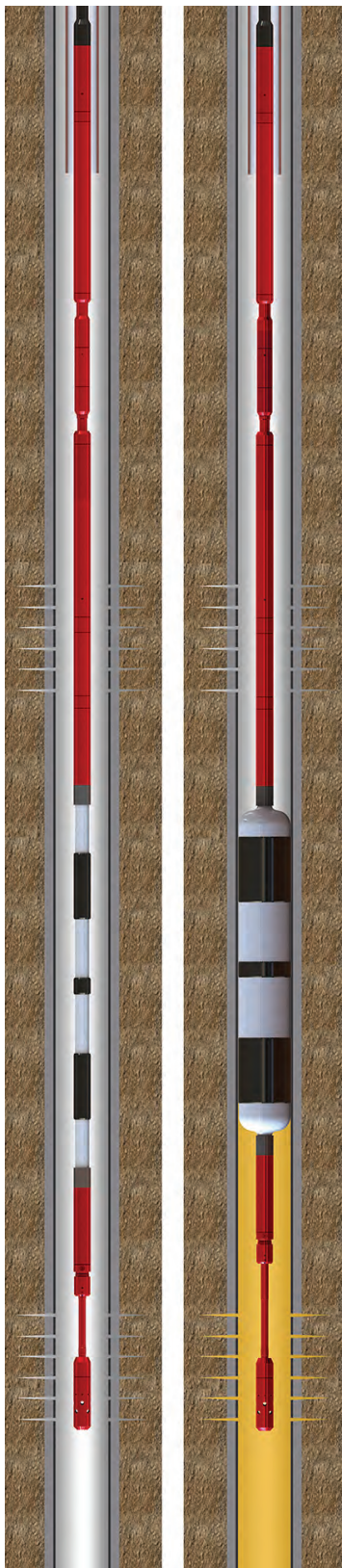


Slat Type Inflatable Elements

Inflatable Element Pressure Rating

INFLATABLE ELEMENT (SLAT TYPE) RATING PRESSURE														
Standard Services														
Element OD [inch]	ID of Casing [inch]													
	2.44	2.99	3.54	3.95	4.15	4.89	5.92	6.09	6.76	7.51	8.68	9.76	10.77	12.41
Max Differential Pressure [psi]														
1.690	5000	4200	3000	2300	1800	1500								
2.125	6000	6000	5500	4400	3600	2600	1600	1500						
2.500		6500	6200	6000	5500	4200	2600	2100	1600					
2.750		7000	6800	6400	6000	5500	3700	3100	2300	1600				
3.000			8000	7500	7000	6500	5000	4500	3400	2500	1500			
3.375				8500	8000	7500	6500	6000	4500	3500	2300	1600		
4.250						8500	7500	6500	5500	4500	3000	2100		
5.375							8500	8000	7500	7000	6000	4000	3200	2200
6.500										8000	6500	4500	3700	2700

Thru-Tubing Inflatable Retrievable Packer



The Thru-Tubing Inflatable Retrievable Packer provides a means of performing remedial and stimulation operations without pulling the production tubing. An inflatable packing element on the packer is sized to pass through the production tubing, pack off the casing/liner below and then the equalized and deflated packer can be retrieved through the production tubing. The thru-tubing packer has a large expansion inflatable packing element so that it can run through small diameters, such as production tubing, and set in the casing/liner below the tubing.

Applications

- High-pressure production or testing
- Fracture stimulation jobs with anchored or floating tubing strings
- Lower-zone isolation, using the packer as a bridge plug
- Upper-completion workover without the need to unseat the packer
- Chemical stimulation, inhibition, water shut off treatments
- Selective well monitoring and testing
- Hole hunting / leak testing

Features, Advantages and Benefits

- Well can be reworked without pulling the tubing string or introducing kill fluid.
- Packer can be run on coiled tubing as well as threaded tubing.
- Can be used in vertical, high-angle, and horizontal application.
- Provides excellent open-hole or cased-hole zonal isolation.
- Pressure can be equalized across the packer before it is released.

Thru-Tubing Inflatable Packer							
Body OD [inch]	Element OD [inch]	Specification					
		Inside Diameter [inch]	Length with Running Tool [inch]	Length without Running Tool [inch]	Fishing Neck Size and Type	Guide Ring OD [inch]	Min. Restriction to Pass Through [inch]
1.690	1.690	0.460	165	140	-	1.753	1.859
2.125	2.125	0.625	165	140	1.37 OD External	2.188	2.338
	2.500					2.563	2.750
	2.750					2.813	3.025
3.000	3.000	0.815	167	142	2.5 OD External	3.063	3.300
	3.375					3.438	3.713

Thru-Tubing Inflatable Retrievable / Permanent Bridge Plug

The Thru-Tubing Bridge Plug (TTBP) provides the ability to temporarily plug the casing below the production tubing. Applications include: temporary shutoff of lower zone, selective acid or chemical treatments, fracturing of upper perforation intervals, isolation of sensitive zones during recompletions, or zonal isolations. The bridge plug can be run on coiled or threaded tubing, or on electric wireline. The plug is equalized, released and retrieved with either tubing, braided wireline, or slick line with a single trip in the hole.

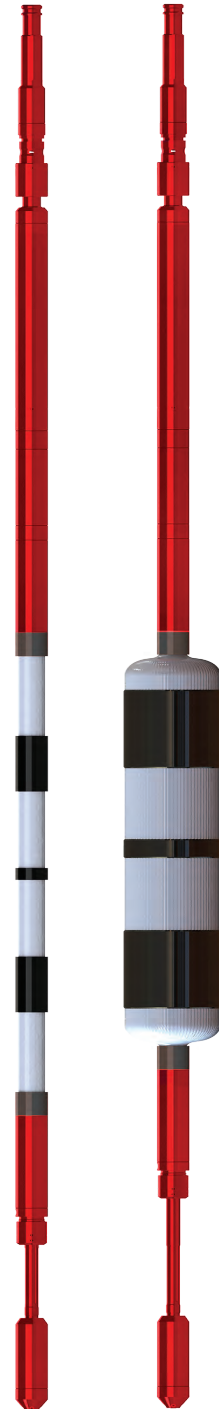
Applications

- High-pressure production or testing
- Fracture stimulation
- Highly deviated wells and doglegs
- Temporary abandonment
- Temporary zonal isolation
- Primary/secondary wellhead barrier

Features, Advantages and Benefits

- Along with the setting cylinder below the element, the one-piece mandrel eliminates the O-ring connection between the top sub and mandrel, minimizing leak paths and providing greater reliability.
- The packer can be set in a single trip without rotation or reciprocation of the tubing string, saving valuable rig time.

Thru-Tubing Inflatable Bridge Plug						
Body OD [inch]	Element OD [inch]	Specification				
		Length with Running Tool [inch]	Length without Running Tool [inch]	Fishing Neck Size and Type	Guide Ring OD [inch]	Min. Restriction to Pass Through [inch]
1.690	1.690	164	139	-	1.753	1.859
2.125	2.125	164	139	1.37 OD External	2.188	2.338
	2.500				2.563	2.750
	2.750				2.813	3.025
3.000	3.000	166	141	2.5 OD External	3.063	3.300
	3.375				3.438	3.713



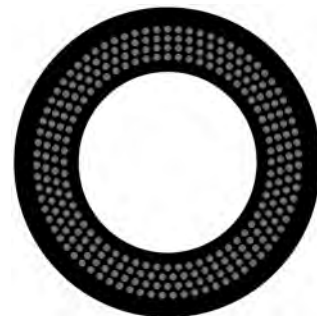
Cable reinforcing elements



Cable reinforcing elements are used, such as at least one sheet of flexible wires embedded in the wall of the inflatable element, the sheet having a circularly cylindrical surface on the same axis as the inflatable. They are used in washing wells and other applications where constant working of the cup is expected. Our cable elements are also made with special gas- and oil-resistant compounds, making them ideal for oilfield applications. The cable element is recommended for applications requiring multiple inflation cycles, retrievable operations, and when setting the element in perforations, slots, or open hole.

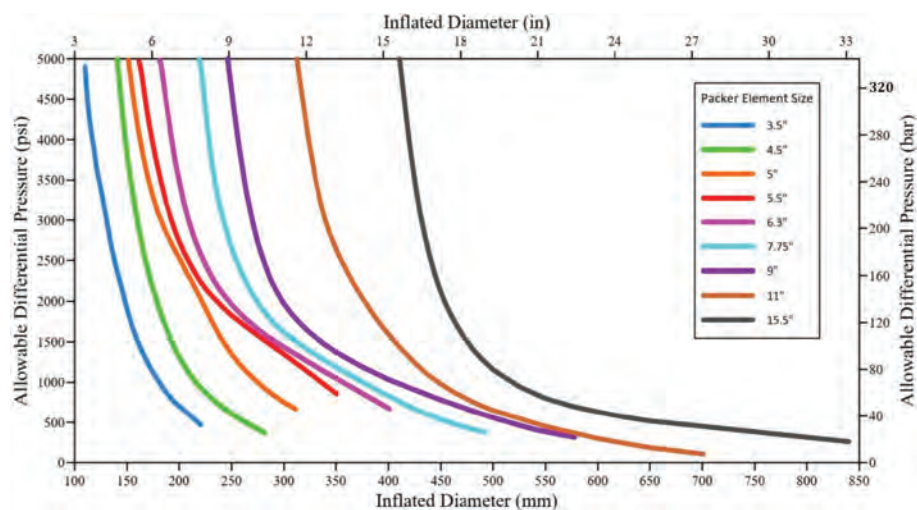
Applications

- Suitable for setting in open hole
- Formation acidizing and treatment
- Cement squeeze
- Permanent plug or retainer



Features, Advantages and Benefits

- Can be re-dressed and re-run with same packer element
- Multiple set capability
- No welding during construction
- Full-length steel wire reinforced element



Swell Packer Isolation System

The Swell Packer isolation system is an innovative technology that offers simple, safe, and reliable downhole isolation. The Swell Packer system is based on the swelling properties of rubber in hydrocarbons, water, or both. A Swell Packer system can swell up to 200%, sealing the annulus around the pipe to achieve effective zonal isolation. Once deployed, the rubber retains its flexibility, allowing the Swell Packer isolation system to adapt to shifts in the formation over time, thus retaining the seal integrity. Additionally, the Swell Packer system's self-healing properties make this a reliable and risk-mitigating technology for all zonal isolation applications. Each Swell Packer system is bonded to a base pipe and can be delivered with any element length, only limited by the base pipe length. Because the rubber is bonded to the base pipe, it is extremely robust and can hold significant differential pressures and can be rotated or reciprocated while running in hole. After the element is bonded, the rubber element also retains its flexibility, enhancing run-in-hole effectiveness.

Applications

- Open and cased-hole isolation
- Stimulation placement
- Open and cased-hole straddles
- Intelligent completion systems

Features, Advantages and Benefits

- No specialist required for installation
- Maintains casing integrity
- Ideal for irregular borehole geometry
- Alternative solution to cementing and perforating in certain applications
- Able to complement cement to resolve well integrity issues



Swell Packer Technology

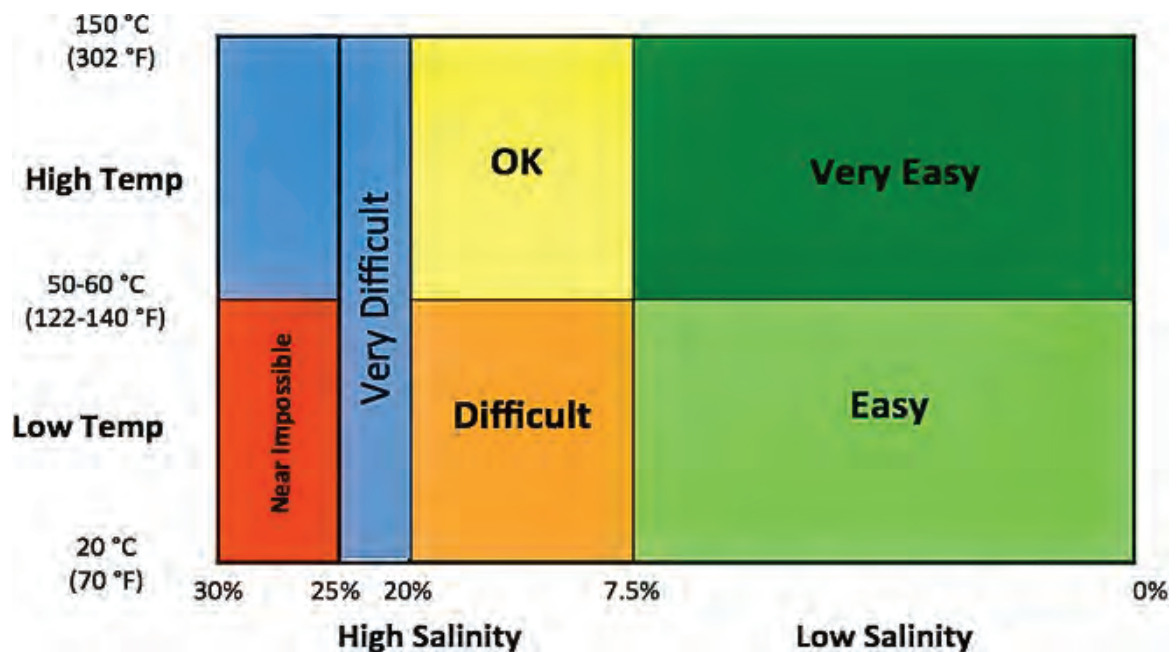
Swellable Elastomers

- High temperature resistance up to 300 °C
- Preserve up to 550 bar differential pressure
- Aggressive chemical resistance (H₂S, HCl)
- High fluid (Oil, Water, Oil/Water) absorption up to 10 times of initial volume
- Swells in highly saturated brines and heavy oils
- Service life up to 10 years without noticeable property change

Swelling Delay Coating Systems

To help minimize the effect of oil or water contained within the well fluid on the packer while it is run in hole, we engineered several systems that can delay the swelling process. These delay systems help enable control of the elastomer swelling process, thus helping ensure the setting time can be tailored according to the customer's needs. This mitigates premature setting risks while optimizing the Swell Packer system operating envelope. The swelling delay systems include the use of polymers to slower swelling properties. Because of meticulous systems testing and qualification, customizing a design with either of these options, or using them in combination, allows us to create a well-specific engineered product:

- Fluid sensitive coating (Oil, Water, Brine, Acid)
- Temperature triggered coating
- Controlled degrading coating
- Water, oil and acid dissolvable coating
- Aggressive chemicals fluorine based protective coating.



Swell Simulator Software

A program for selecting the most suitable Swell Packer system design to overcome the challenges of each wellbore this software helps representatives provide engineered, customized packer design recommendations based on specific customer requirements and well conditions this helps ensure delivery of the industry's most reliable swellable packer solutions. Because the simulator is based on actual test data, it provides the most confidence the selected product will meet customer expectations.

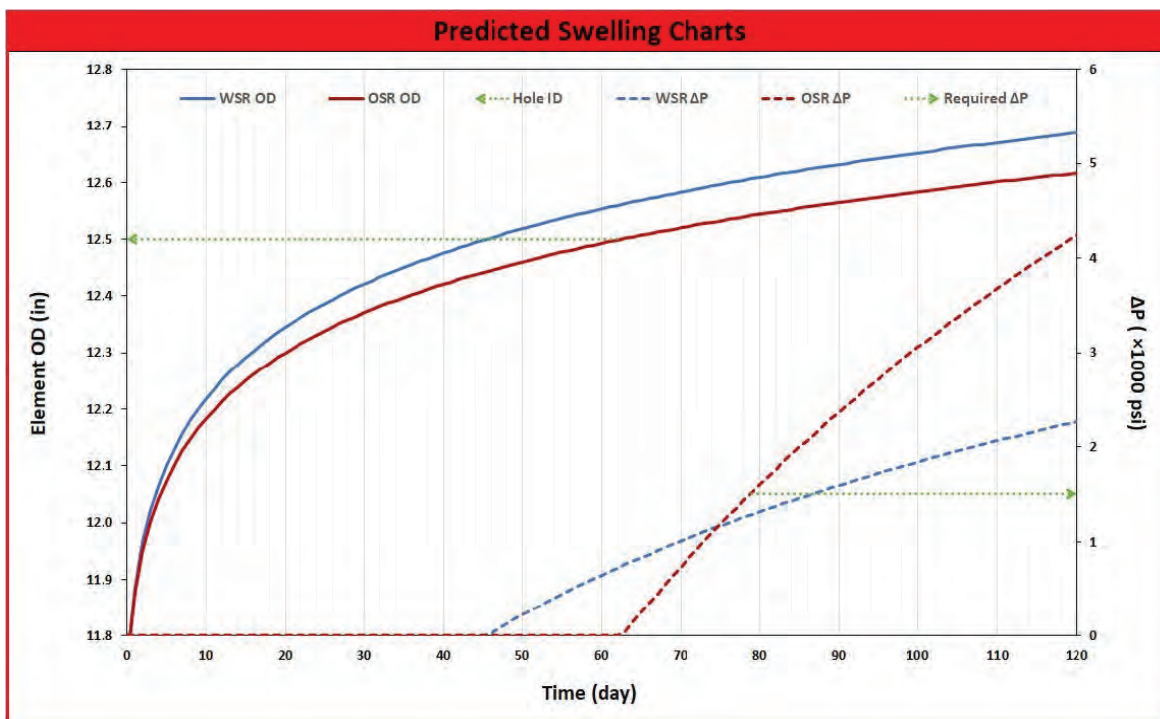
The software was developed through extensive testing on the expansion properties of swellable elastomers using the customer's well conditions and requirements helps the software program predict the downhole performance of each customized Swell Packer system design this provides the user the ability to observe the impact of well conditions on a variety of designs (bonded-to-pipe, slip-on, cable bypass, etc.) and polymer types (oil, water, and hybrid-swelling) in the proposed well environment. Packer design collaboration often occurs in real time as representatives illustrate changes in variables using the software until the packer is optimized to meet the challenges of the application.

Features, Advantages and Benefits

- Provides engineered packer performance recommendations
- Predicts time to first seal
- Illustrates time to operational and maximum differential pressure
- Shows the effect of hole size variation
- Reduces downhole risks
- Decreases non-productive time

Software Output

The simulator automatically generates a differential pressure profile and a swell profile (time to seal and time to fully set vs. hole size) curve. The following example shows the curves extracted from the simulator.



Rubber Packer Elements



Features, Advantages and Benefits

- Partially supporting weight for the down-hole tubing
- Improving well flow and production rate
- Separating different producing zones
- Enhancing safety by limiting well control to tubing at the surface
- Holding fluid for well servicing in the casing annulus
- Preventing the downhole movement of the tubing string
- Guarding the annular casing from corrosion caused by the fluids and high pressures

Elastomer Technology

- High temperature resistance up to 200 °C
- Preserve up to 500 bar differential pressure
- High extrusion resistance
- Very low swelling against oil and aromatics
- Very low compression set
- Aggressive chemical resistance (H₂S, HCl)
- Low permeability against gaseous diffusion
- Service life up to 10 years without noticeable property change



Elastomeric Bearings

Elastomeric bearings not only provide superior vibration control, but also lower the operating costs. Elastomeric bearings are ideal for replacing conventional bearings, because they require no lubrication, support high radial loads with moderate oscillatory motion and operate in harsh environmental conditions. Compared to traditional hard bearings, Elastomeric bearings have lower

Elastomer Technology

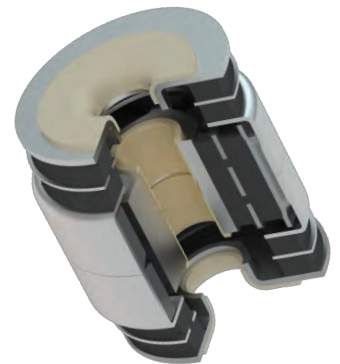
- -50 °C to 150°C service temperature
- High resilience rubber compound
- Enable high torsional deflection without damaging the rubber components
- High fatigue life (10,000,000 cycles under a 12 ton-force load)
- Long time service life

Features, Advantages and Benefits

- **Cost Effective:** Lowers operating costs, reduces overhaul time, decreases number of parts to stock
- **Lower Maintenance Costs:** Requires no lubrication, ever extends the bearing life, reduces unscheduled maintenance
- **Dependable:** reduces vibration levels
- **Flexible Design Concept:** The Flexible design concept of the HCL Elastomeric Bearing allows for cylindrical or spherical sections, or a combination of both, depending on the vehicle inputs
- **Longer Life:** Impervious to contaminants that would ruin traditional bearings
- **Easy Inspection:** Visual inspection indicates approaching end of life
- **Controllable Dynamic Properties:** Stiffness and damping can be engineered for applications

Applications

- High duty vehicles
- Aviation
- Acoustic
- Automotive
- compressors
- Turbines
- Roads and buildings



Who We Are?

**We are an Oilfield Company
that designs, manufactures and
provides Remedial and Completion
services to the Oil and Gas industry.**



+98 21 4688 3418



Info@thepetroco.com



www.ThePetroco.com



No. 3, Kavoshgaran St. Zagros Blvd. Qods city, Tehran, Iran.