

Packers/Well Intervention

Paragon II Retrievable Straddle Pack System

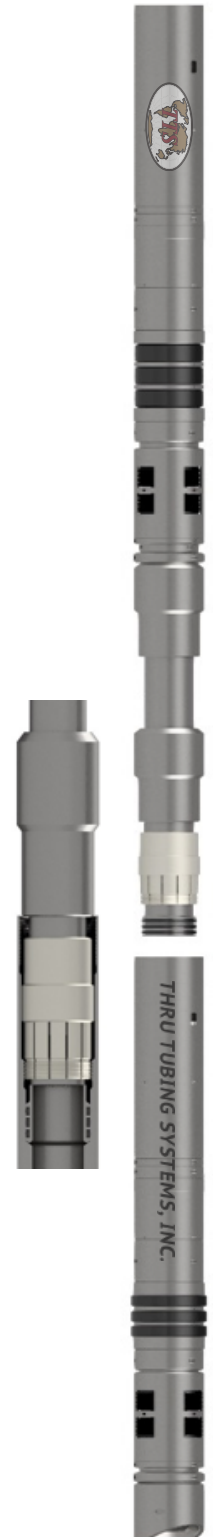
Utilizing the TTS Paragon II Retrievable DSB Thru-Tubing Packer, an isolation straddle packer system can be installed via wireline, coiled tubing, or jointed pipe. When pressure control is required and/or lubricator height limits running length, modular latching seal extensions can be run in segments to achieve a straddle over a longer interval. This system can be used to patch holes in tubing, isolate zones, provide gas lift or jet pump installation.

Features/Benefits

- ◆ Modular design allows adjustable and unlimited length with use of PBR and Anchor Latch.
- ◆ Dual Seal Bore design provides full opening ID thru Latch Seal.
- ◆ Capable of setting in corrosion-resistant alloys and high tensile tubulars such as:
 - 13Cr, Hyper chrome
 - Inconel; and
 - Q-125, S-135
- ◆ Retrievable installation of any composite or polymer tubing
- ◆ Positive Indicating Latch Seal.
- ◆ Packers hold differential pressure from above and below.
- ◆ Requires only two trips to set or retrieve on slickline or wireline; one or two trips on coil tubing. Saves time and risk compared to conventional tubing stop and pack-off alternatives requiring several trips to install.
- ◆ Seal bore can be manufactured to accommodate tubing movements caused by downhole temperature changes due to injection and production operations. Allows for floating seals up to 17' of stroke.
- ◆ Each packer can be tested along with all connections of coil tubing as they are run into the well.
- ◆ Superior sealing and anchoring system. Multi-durometer packing system holds pressure from above or below.
- ◆ Paragon II packers available in 5,000 psi and 7,500 psi pressure ratings. See Pages 27–29.

Applications

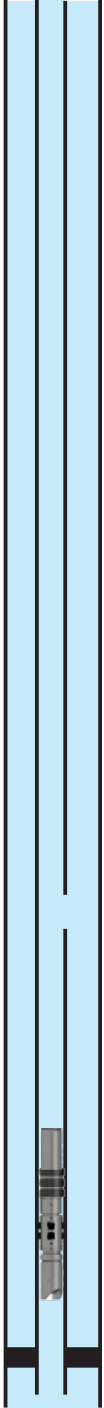
- ◆ Retrievable Tubing Patch for tubing leaks
- ◆ Retrievable Straddle for Zone Isolation
- ◆ Retrievable Straddle for Gas Lift Installation
- ◆ Retrievable Jet Pump Installation
- ◆ Retrievable Stand-Alone Screen Straddles



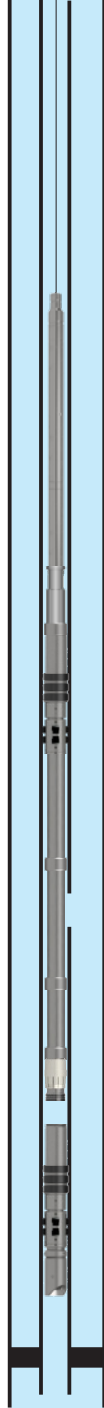


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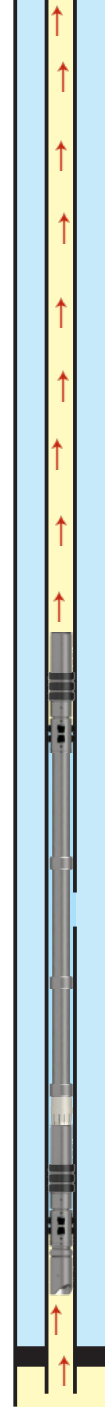
Retrievable Tubing Straddle for Tubing Leaks



Set Lower Packer



Locate Seals

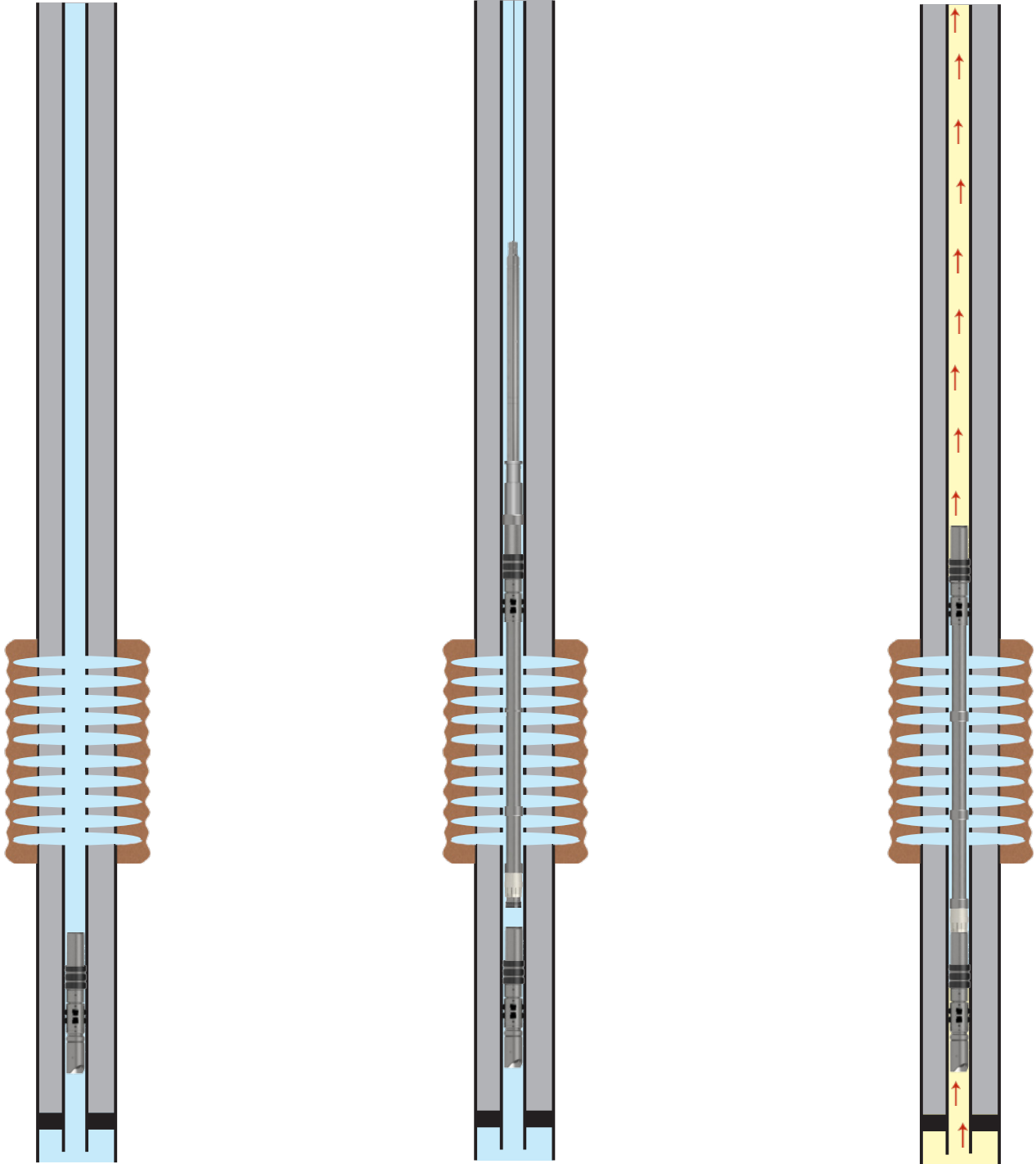


Set Upper Packer



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Retrievable Straddle for Zone Isolation for Monobore Well



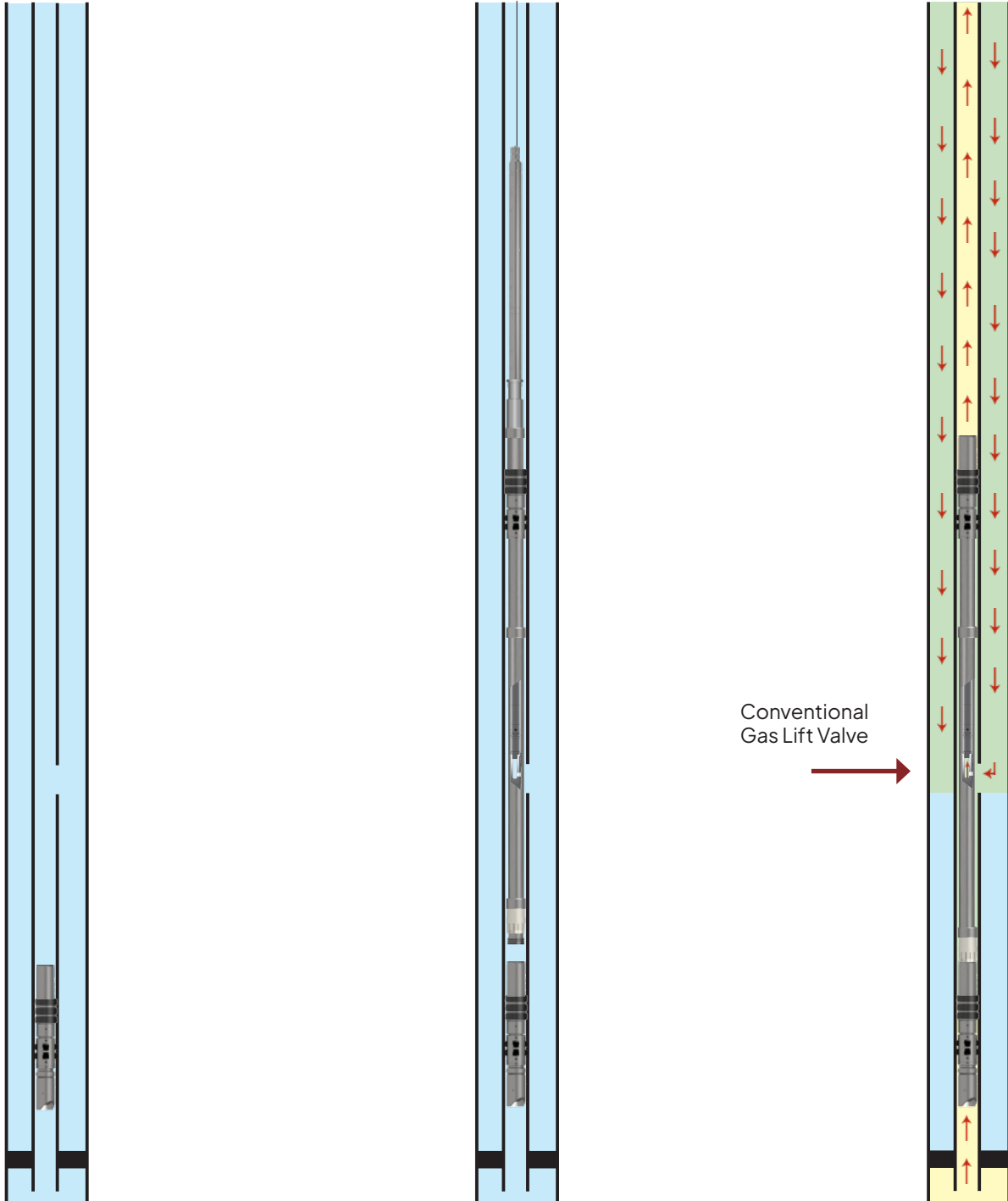
Set Lower Packer

Locate Seals

Set Upper Packer

Packers/Well Intervention

Retrievable Straddle for Gas Lift Installation



Punch Hole in Tubing

Set Straddle

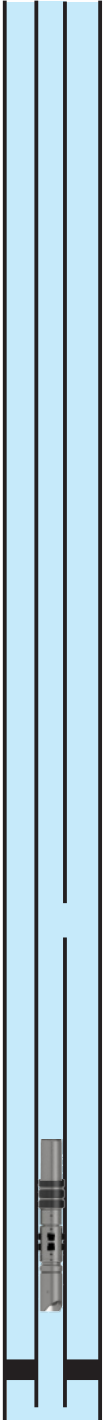
Gas Lift

Conventional
Gas Lift Valve

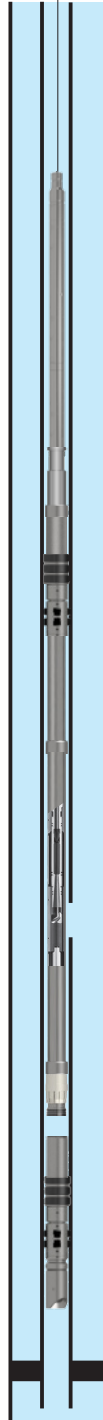


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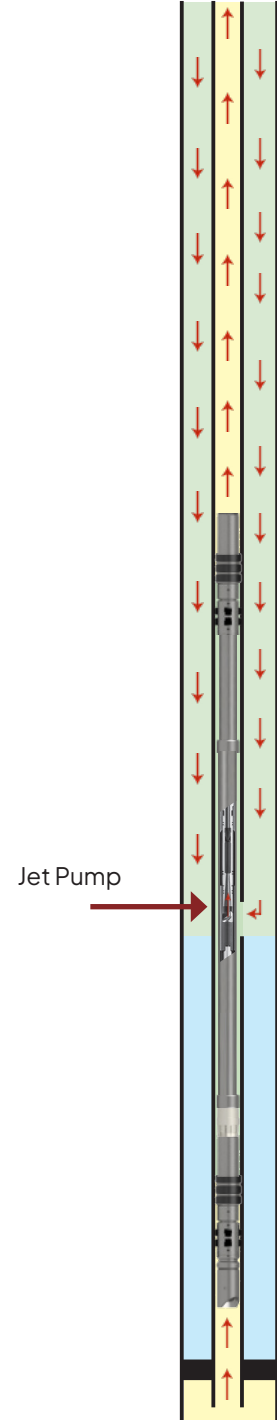
Retrievable Jet Pump Installation



Set Lower Packer



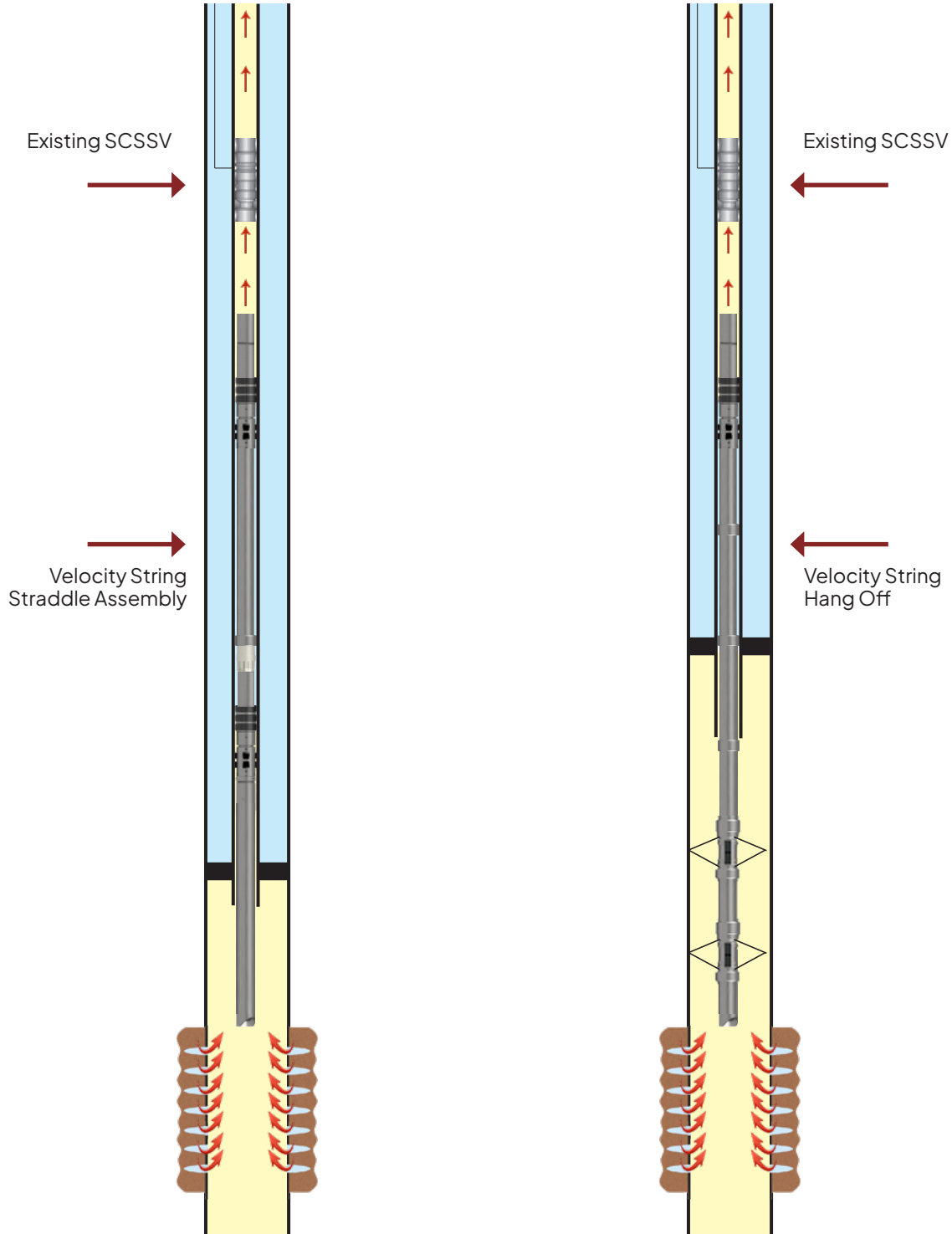
Locate Seals



Set Upper Packer

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TTS Velocity String Assemblies



Packers/Well Intervention

Permanent Tubing Patch Systems

Utilizing the TTS Tubing Patch provides a method to restore tubular integrity and allow continued production without requiring a rig workover. It is a modular liner system used to isolate zones/ intervals with unwanted perforations, holes, or leaking connections. The modular design allows for a customized system for specific well condition. It is normally conveyed into the well using wireline, but can also be deployed with coiled tubing, or jointed pipe.

Features/Benefits

- ◆ Expandable metal sealing units
- ◆ Good for harsh environments that may be harmful to elastomer sealed systems
- ◆ Patch metal elements hold indifferent pressure from above and below
- ◆ Sliding Sleeve valves can be installed to allow for selective production or the controlled placement of cement or resin behind the patch

Application

- ◆ Permanent Tubing Patch for tubing leaks
- ◆ Permanent Straddle for Zone Isolation
- ◆ Permanent Liner Hanger Assembly
- ◆ Permanent Velocity String
- ◆ Permanent Gas Lift Systems
- ◆ Permanent SSSCV Installation
- ◆ Permanent Sump Packer

Permanent Tubing Patch					
Tubing Size & Weight (lb/ft)	Patch OD (in)	Patch ID (in)	*Testing Validation (API)	Pressure Differential (psi)	Temperature Rating (F)
2-7/8" 6.50	2.260	1.870	V5	8,000	400
3-1/2" 9.30 – 10.2	2.753	2.230	V5	6,200	400



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Permanent Tubing Stackable Patch (STP)

A Thru Tubing Systems Tubing Patch provides a method to restore tubular integrity and allow continued production without requiring a rig workover. The patch system functions by using expandable metal sealing units on both ends of a tube section. Expansion of the seal units creates a liner isolating the undesirable section in the production tubing.

The Stackable Tubing Patch is specialized adaptation designed to allow the operator to “build” a longer length Tubing Patch by “stacking” a series of shorter patch segments together downhole. The operator may need to run shorter segments due to rig-up length, downhole clearance issues, weight, or other limitations. It is normally conveyed into the well using wireline, but can also be deployed with coiled tubing, or jointed pipe.

Features/Benefits

- ◆ Metal Seal Elements for harsh well environments
- ◆ Modular Design provides project operational flexibility
- ◆ Stackable Design allows for longer intervals to be patched using short sections over multiple runs

Application

- ◆ Tubing Patch
- ◆ Zonal Isolation
- ◆ Liner



Permanent Tubing Stackable Patch (STP)			
Tubing Size & Weight (lb/ft)	OD (in)	ID (in)	Pressure Rating (psi)
2-7/8" 6.4 - 6.5	2.280	1.800	5000
3-1/2" 9.3 - 10.2	2.753	2.200	5000