
FAQ for Owen Oil Tools X-SPAN[®] Systems

Q: How many Tubing and casing patch system has been run?

A: Since the first iteration of the system back in 1993 there has been 4,497 recorded operations by Owen Oil Tools to date. This equates to 95,765 ft of X-Span systems being deployed across the globe.

Q: What is the success rate?

A: 98.5% when setting depth was achieved.

Q: Do you have a case history archive?

A: Yes, we have an extensive archive that dates back over 15 years.

Q: Can X-SPAN[®] be deployed on wireline?

A: The majority of our patches are deployed and set on wireline. It is a very quick deployment method and a very accurate method for depth control.

Q: Can X-SPAN[®] be deployed on coil tubing, jointed tubing or drill pipe?

A: X-Span can be deployed on anything including slickline and braided fishing line.

Q: What are the main factors to consider when deciding on running X-SPAN[®] on wireline or tubing?

A: The main factors to be considered are the length and the weight of the patch as well as the deviation of the well. Also is the well live or dead? If the well is live than the patch may have to be short enough to fit in a lubricator and if a long patch is required than you may have to go with a stackable system or kill the well. Dog legs in the well bore are another consideration. If X-SPAN[®] is run on tubing wireline is usually also used to position the patch on depth.

Q: What do I have to do to prepare the well before running X-SPAN[®]?

A: The main factors to be considered are the length and the weight of the patch as well as the deviation of the well Owen highly recommends the use of a casing scraper before patch installation to rid the interval of foreign matter. A gauge ring or drift run is a minimum requirement. Also recommended is the use of a casing caliper to provide an accurate record of casing ID and condition. It is imperative that the sealing elements are set in good casing and try to avoid casing collars and areas where drilling or milling took place.

Q: Can X-SPAN be deployed in horizontal wells?

A: X-SPAN can be deployed via coil tubing and standard tubing and set with a hydraulic setting tool. Depth correlation becomes more difficult with CT, due to coil stretch and/or spiral stack-up. Standard tubing, while not as accurate as e-line CCL, can be strapped in and provides a more accurate correlation. X-SPAN can also be deployed in horizontal wells on e-line by tractor.

Q: In how many horizontal well applications has X-SPAN been deployed?

A: Since 2006 there have been 2885 deployments in wells of 40° and greater.

Q: What is the maximum dog leg severity through which X-SPAN will pass?

A: In 5-1/2" x 17# casing, for example, the maximum dog leg severity is estimated at 12°/100 feet depending on length. However in wells with dogleg severity in excess of 4°/100 feet a dummy run is highly recommended.

Q: Can X-SPAN be set in the heel of a horizontal well?

A: If the patch will pass through the dog leg deviation, it will set in the curve.

Q: What are alternative solutions for highly deviated wells?

A: Owen's Stackable system allows for the passage of setting elements and short extensions through deviation restrictions. Also, available is the two-trip system, which incorporates similar technology to the Stackable, but allows operators to utilize their own tubing or casing for the interval spacing.

Q: Can X-SPAN be deployed in shallow wells?

A: Yes. It is highly suggested that the well bore be fluid-loaded and deployed under lubricator when the deployment is via e-line, to mitigate the jump in the setting tool. X-SPAN has been successfully deployed just below the surface.

Q: What is the maximum length that X-SPAN can be deployed in a single run?

A: It varies according to size and weight. On average, 40' can easily be deployed on e-line in a single run, while 300' can be deployed on tubing in a single run.

Q: Can X-SPAN be deployed in steam injection or geothermal wells?

A: Yes. High temp applications >400° F require a specially threaded connection for extension sections and elements.

Q: What are the possible ramifications of fracturing through X-SPAN?

A: Should the differential pressures associated with the frac exceed the system ratings, the threaded connections could leak.

Q: Will the patch actually burst or collapse under extreme pressures?

A: Generally speaking, the materials with which the X-SPAN system is constructed, will withstand pressures comparative to the casing in which the patch is deployed. Some systems are constructed from mild steel, and are rated at approximately 50-55K psi (in 5-1/2' x 17# casing). Others are constructed of L-80 material, and would have ratings similar to N-80 casing.

Q: How much of a restriction does X-SPAN® make to the well bore?

A: It can range from one system to another but a good estimate is from .68” to .75”.

Q: Is there a bridge plug that will pass through X-SPAN and set in the casing below?

A: There are some Magna-Range Bridge Plugs that will pass through some select patches and set in the casing below. An example is the Owen PLG-3250-101, which will pass through an 4-1/2” x 9.5-10.5# Standard X-SPAN Patch and set in the casing below. It is necessary to consult the API standards for casing and compare to the X-SPAN specifications and the specifications for the Magna- Range Bridge Plugs, in order to determine if there is a plug for specific casing sizes. On some X-SPAN systems for larger casing, a 10K cast iron premium plug will also pass through the patch and set in the casing below.

Q: Can a bridge plug be set inside an X-SPAN patch and be expected to hold back frac pressures?

A: It depends on what the maximum differential pressure will be. If the documented holding capacity for X-SPAN is less than what the calculated bull-head load would be against the plug/patch combination, it will not hold.

Q: What is the pump pressure required to set a patch?

A: On a tubing deployment with a Hydraulic Setting Tool (HST), typical pump pressure to achieve setting and shear can range from 2500-5000 psi surface pressures; depending upon which HST is used.

Q: Will X-SPAN seal in P-110 grade casing?

A: While the holding capacity may be less than if set in J-55 or L-80 casing, the X-SPAN metal to metal seal will form an effective seal in P-110.

Q: How much tension can be pulled against the casing string in which X-SPAN has been deployed to repair a casing collar separation?

A: It varies, depending upon the size and grade of the casing, but on average one should be able to expect to be able to hold 60-80K lbs over-pull.

Q: What is the most common cause of failure?

A: Improper well preparation. The sealing elements must be set in good casing. If there is any doubt about the condition of the casing at the sealing element setting depths, a casing inspection log should be run prior to running the patch.

Q: Is it easy to adjust the over-all length of the patch in the field?

A: Yes, the system is modular and the length of the straddle pipe between the sealing elements can be easily adjusted by adding or removing 5’ or 10’ sections as required.



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Q: How much overlap is required?

A: Generally, we like to overlap whatever we are isolating by 5ft on either side. For isolating a hole caused by corrosion in the middle of a casing joint, we generally recommend isolating the complete joint.

Q: What is the maximum degradation from corrosion in casing allowable for successful deployment?

A: The typical rule of thumb for integrity consideration is that the casing wall must be at least 80% of the original thickness; otherwise the radial forces exerted from the expansion of the elements could cause casing wall failure. Additionally, should the corrosion effects reduce the ID past the API specified Max ID dimensions, the patch could fail to set mechanically.