



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

A: Yes. The majority of our patches are deployed and set on wireline. It is a very quick, inexpensive 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: Yes. 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 electric 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 electric wireline is may also be required 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: Yes. X-SPAN® can be deployed via coil tubing and standard tubing or drill pipe and set with a hydraulic setting tool. Smart coil is another option. Depth correlation becomes more difficult with CT due to coil stretch and/or spiral stack-up. Standard tubing, while not as accurate as an e-line CCL, can be strapped in and provides a more accurate correlation. X-SPAN® can also be deployed in horizontal wells via e-line with the employment of a tractor unit.

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

A: As of September, 2012; since 2006 there have been 833 successful deployments in wells of 40° or greater deviation, 317 of which were in 60° or greater deviation.

Q: How much over-lap do we require?

A: It depends on the deployment and positioning method. An over-lap whatever we are isolating by 3ft to 5ft on either side is recommended. On horizontal wells we recommend an increase to 5ft to 10ft to allow for inaccuracies in depth control.

Q: Can I use X-SPAN® to patch split or parted casing?

A: Yes as long as the sealing elements are set in good casing the pressure integrity is maintained due to the patch's wall thickness. We have patched parted casing with up to a 2ft gap.



Q: What is the maximum dog leg severity through which X-SPAN® will pass when being deployed by wireline?

A: In 5-1/2" x 17# casing, for example, the maximum dog leg severity is estimated at 12°/100 feet for a wireline deployed patch but length and weight also have an effect. A drift or dummy run is highly recommended prior to running the actual patch. If the drift will pass then so will the patch in all likely hood.

Q: What is the maximum deviation that a patch can be deployed on wireline?

A: Generally we have found that about 62° is the maximum but dog leg severity as mentioned above and the length and weight of the patch also have to be considered.

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

A: Yes. 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 or live 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, weight and deployment method. On average, 40' to 100' can easily be deployed on e-line in a single run, while 300' is the maximum that can be deployed on tubing in a single run. The sections or extensions between the sealing elements come in 10ft lengths and are assembled in the field to the length required. Lengths can be custom built as per customers request if need be. With a two trip system on tubing or drill pipe longer intervals are possible. Contact an Owen rep. for details and design.

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 is the maximum temperature rating of X-SPAN®?

A: 700 °F on MonoFIT (One piece systems).

Q: Can you Frac through X-SPAN®?

A: Yes. Care has to be taken so as the differential pressures associated with the frac don't exceed the system ratings of the patch.



Q: What are the maximum volumes and rates that you can pump through the X-SPAN® system without damaging it?

A: It will depend on the type of propanant and the viscosity of the fluid but as an example one customer pumped 223.5 tons of sand and 1588.5m³ (419,683 gallons) of fluid at a maximum rate of 10m³/min (2642 gallons/min) through a 4-1/2" SC patch in a horizontal well at 7700psi without any problems.

Q: What is the maximum pressure rating of X-SPAN®?

A: It can be as high as 10,000psi on some systems.

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

A: On a tubing deployment system 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: 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: Will a packer or tubing anchor pass through the patch and set in the casing below?

A: No, not a steel bodied packer but there are inflatables that will. If you want to run a steel bodied packer it will have to be run and set in place prior to setting the patch. Another option would be to set an additional patch in the area that you wanted to set the packer, the packer could then be run and set in the ID of the lower patch. High expansion plugs are an option in some cases, contact and Owen rep. for details.

Q: Can we use X-SPAN® in wells with Co₂ and H₂S?

A: Yes, X-span is available in a variety of metals and alloys ranging from mild steel to L-80 to 13Cr.

Q: Is X-SPAN® retrievable?

A: It is meant as a permanent system but it can be removed and we have a set of procedures that we recommend to be used.

Q: Where and for who have you ran X-SPAN® before?

A: We have a complete X-SPAN case history data base that includes 10 years of job data.

Q: What is the success rate of X-SPAN®?

A: We have a documented success rate of 98% when the setting depth is achieved.

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: How much does it cost?

A: On average it costs about one third the cost of a cement squeeze.



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

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

Q: How much can I push or pull on X-SPAN before it will move?

A: The holding force will depend on the size and type of X-SPAN as well as the grade of the material that it is set in. As a rule of thumb they will hold the force of the shear ring that was used to set them so it could range from 30,000 pounds for a tubing patch up to 85,000 pounds for a casing patch.

Q: What is the success rate?

A: 98% when setting depth is achieved.