

# TCO's Barrier Glass Plug

With a track record of 600 glass plug installations worldwide and a reputation for innovation and robustness, TCO are supporting customers all over the world with easy to open glass barriers that provide full control of well operations.

## Product

Completion Barrier Glass Plug - Tubing Disappearing Plug (TDP)

## Location

Qatar, Middle East

## Challenge

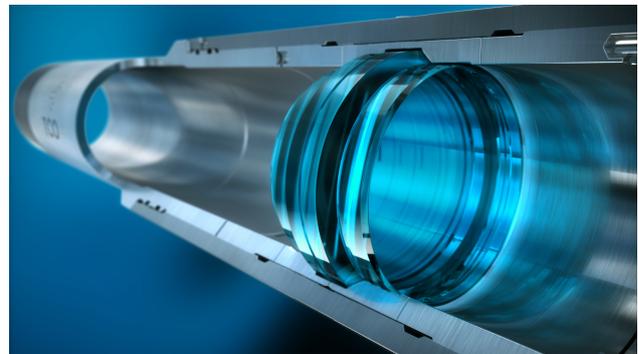
Due to the clients high flow rate, a large ID was required to avoid introducing unnecessary flow restrictions. TCO was challenged to deploy a barrier with an ID of 5.88" to fit inside a 9 5/8" casing. The barrier should serve as a secure, non-corrodible seal as well as withstanding extreme levels of differential pressure from both sides in high producing wells. In addition to the required robustness, the barrier should be opened effectively by the operator to provide the best flow capabilities and meet highly demanding production delivery times.

## Solution

The client selected TCO and their Tubing Disappearing Plug 833x588 to be installed in its high flow environment. Due to the unique properties of glass, the client could secure the well with a robust barrier knowing that it would be milled through easily leaving only small fragments of silica that are produced out of the well .

The Tubing Disappearing Plug technology, first installed in 2004 incorporates TCO's patented laminated glass material, built into an ISO 14310 V0 certified barrier plug package. The technology/product is designed for the most extreme conditions providing a total seal against all fluids, including situations where high differential pressure across the barrier occurs. The patented laminated glass barrier material provides a secure, non-corrodible seal under high temperatures and axial loads. The glass disintegrates into small particles (silica) upon opening. The Tubing Disappearing Plug has been developed to be installed and run as an integrated part of the completion string or liner. This increases the efficiency of the installation process and provides large bore access when the plug is opened. A full ID of the plug is always

guaranteed after opening. With more than 600 installations worldwide, no integrity issues have occurred.



## TCO Glass Barrier Plugs

TCO's first patented laminated glass plug increases well productivity, improves efficiency, and helps prevent accidents and environmental hazards. Ideal for any conditions and fixed cost operations.

## Result

The first plug was successfully installed and tested according to the client's requirements on the 14<sup>th</sup> of August 2016. The client planned on milling the plug open on coiled tubing as a primary opening method. The 27<sup>th</sup> of August, the client milled through the barrier in only 30 seconds meeting the client's highly demanding production delivery times. Using glass as barrier, makes the opening operation fast and predictable due to the glass' homogenous characteristics with no moving parts. This is the first plug deployed in Qatar.