REDEFINING WELL COMPLETION TECHNOLOGIES
TCO AS (formerly known as Total Catcher Offshore AS) was established in Bergen, Norway in 1998 as a supplier of fishing tools to the oil and gas industry. In 2001, the company realized that significant benefits could be gained from barrier plugs that could be made to disappear within the wellbore as desired. This led to the creation of the company’s laminated glass tubing disappearing plug — a development that represented a major turning point within the oil and gas sector and brought TCO significant acclaim as an industry leader within technology, innovation and sustainability.

COMPANY HISTORY

2004
The first ISO 14310 V0 certified Tubing Disappearing Plug (TDP) is installed for Statoil in the Norne field. The plug design wins the SME Innovation Award at ONS.

2010
The third generation Tubing Disappearing Plug (TDP-3) is developed with a completely new design, commissioned by BP Norway.

2011
TCO offers Tubing Conveyed Perforating (TCP) services and equipment. The company is now recognized as one of the main TCP plug and abandonment suppliers in the North Sea.

2012
TCO adds a new Chemical Injection System product line to its portfolio, further strengthening the company’s position as an industry leader.

2014
Based on I-Quip technology, TCO expands the company’s product portfolio to include the Annulus Pressure Relief System.
Today, TCO serves the upstream oil and natural gas industry throughout the reservoir life cycle and specializes in the design, manufacture and installation of completion barrier plugs (laminated glass barrier plugs), chemical injection systems, topside chemical injection systems, multi cycle valves and annulus pressure relief systems, as well as the provision of tubing-conveyed perforating (TCP) equipment and services.

A young company with great ambitions, TCO has gained a wealth of experience by working with a range of oil and gas companies to solve their challenges and meet their needs.

Our objective is to improve customers’ performance, reduce operational risk, increase well productivity and maintain cost efficiency by redefining well completion technologies.

- We continuously work to improve our quality and have committed to maintaining a documented quality system in accordance with the ISO 9001 quality standard
- TCO follows a zero-injury philosophy, aiming to operate with no injuries or fatalities among our staff. We prioritize health, safety and environmental protection in order to safeguard our employees, customers and surroundings.

Developed through experience gathered from around 400 TDP installations worldwide, the TCO TDP-3 plug represents a major step change in disappearing barrier plug technology and features high debris tolerance, ISO 14310 V0 certification, a large bore ID and redundant cycling mechanisms.
ONE TEAM – ONE GLOBAL PRESENCE

In addition to the company headquarters in Norway, TCO has offices and agents across the world. Our international presence is continuing to grow and enables us to provide our valued customers with a unique combination of extensive global resources, world-renowned technical expertise and enhanced local knowledge.

TCO is committed to growth and aims to serve more customers on an integrated, international basis – and to continuously improve the products and services we offer. Operating throughout the world enables us to better understand the challenges faced by our customers – and to provide even more effective and innovative solutions.
TCO Wireline Explosive Services include pipe cutters, puncher systems, string shots and pipe recovery systems. TCO uses selective switches and RA safe detonators as standard in order to ensure surface safety.

TCO supplies the latest developments in puncher technology, ensuring large entrance holes and virtually no damage to outside tubulars.

The Annulus Pressure Relief System (also known as the B-Annulus Relief System) was developed to tackle the problem of B-annulus pressure build-up due to thermal expansion during well start-up.

The TCO Multi Cycle Valve (MCV) reduces costs and operational risk, providing a unique combination of security and flexibility for oil and gas field operators performing completion operations.

TCO Disappearing Glass Barrier Plugs provide a total seal (ISO 14310 V0) against all fluids under extreme conditions, reducing operational risk and increasing efficiency for oil and gas field operators.

TCO Chemical Injection Systems are based on the high-end TCO Chemical Injection Valve, which provides the hydrostatic support required to eliminate the U-tube effect. This ensures the durability and effectiveness of the chemical injection system over even the longest well lifetimes.
Challenge: During the development of a deep water project in the North Sea, A/S Norske Shell required an interventionless method of running an upper completion. Gas from the Ormen Lange field is recovered by natural pressure depletion, and the reservoir is highly depleted. Prior to start-up, the well's tubing column was filled with nitrogen in order to lower the hydrostatic pressure and facilitate initial production. The deep installation combined with the nitrogen filled tubing made an interventionless solution preferable.

Solution: Conventional remotely-operated plugs require several pressure cycles to open. In this case, due to the tubing string being filled with nitrogen, it was evident that conventionally cycling open the plug would be time consuming and cost inefficient due to the huge volume of nitrogen that would be needed in order to achieve the necessary fluctuations in pressure. The TDP-3 was therefore installed with an E-trigger in order to reduce the number of cycles required to open the plug to just one, while retaining a unique and specific opening pressure key for safety and reliability.

The plug was programmed to open when the pressure was increased from 25 bar to 50 bar within 60 minutes and then maintained at between 50 and 70 bar for 30 more minutes, before being bled down to 25 bar or lower in the following 60 minutes. Any pressures registered outside of these parameters would abort the opening of the plug. The actual downhole pressures at the plug were read using the permanent downhole gauge.

Result: The TDP-3-E was successfully installed and opened as planned. The pressure was maintained at 68.7 bar for 33 minutes before being bled down to 17 bar. The subsequently observed increase in well pressure indicated that the plug had opened successfully.

Compared to using conventional mechanical cycle-counting mechanisms, using the TDP-3-E saved A/S Norske Shell a minimum of 24 hours' rig time.

To learn more, visit www.tco.no
DO YOU HAVE A CHALLENGE FOR US?
We understand that the ever-changing nature of our industry constantly presents new problems that require new solutions. If you are facing a challenge, contact us — challenges are what drive us to succeed.

DEVELOPMENT AND TESTING
TCO’s R&D department is capable of seeing projects through all stages from initial start-up to final implementation, including project management, design, calculations, simulations, rapid prototyping in both plastic and steel, extensive testing programs, validation, factory acceptance testing, and third-party verification in accordance with relevant ISO and API standards.

MANUFACTURING
TCO has in-house machining capabilities, which provide increased flexibility and ensure excellent quality control and shorter lead times.
TCO is recognised as a leading innovator and challenger within the oil and gas industry. Led by our core values, we aspire to push the boundaries of our field, offering products and services that exceed expectations. We currently employ around 130 talented individuals with a diverse range of backgrounds and global experience.

TCO offers international exposure and continuous growth opportunities to all employees. We work as a team across countries and departments, utilizing our diversity to create innovative solutions for our high profile customers.

TCO is growing at a rapid rate and we offer exciting career opportunities across our global offices. Experienced professionals, graduates and recently qualified candidates are therefore encouraged to apply for our vacancies.

Would you like to work for one of the most cutting-edge organizations within the oil and gas industry? Join our team.

Details of current vacancies can be found at www.tco.no.
GOT A CHALLENGE FOR US?

FIELD: ............................................................
TEMPERATURE: ...........................................
TVD: ...........................................................
WELL FLUID: ...............................................  

WELL: .......................................................  
PRESSURE: ...............................................  
MD: ........................................................  
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