

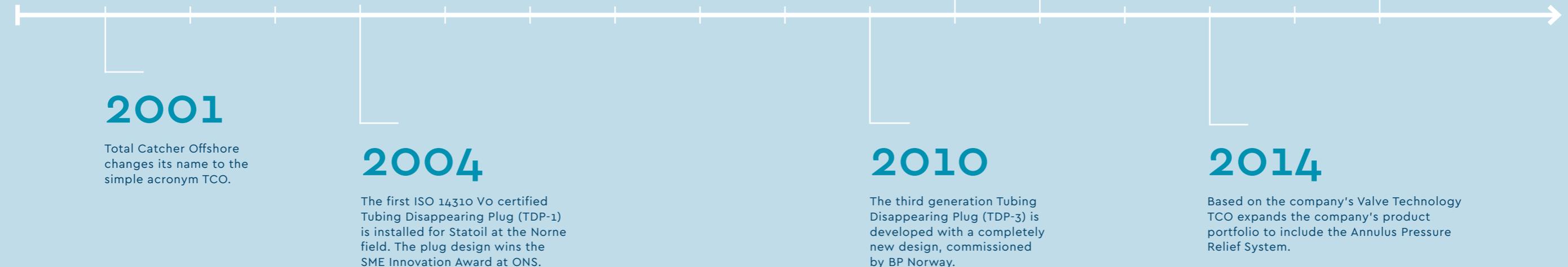
**Well
made.**



Redefining well solutions

– SINCE 1999.

TCO was established in Bergen, Norway in 1999 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 disappeared within the wellbore. 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.



THE TCO WAY:

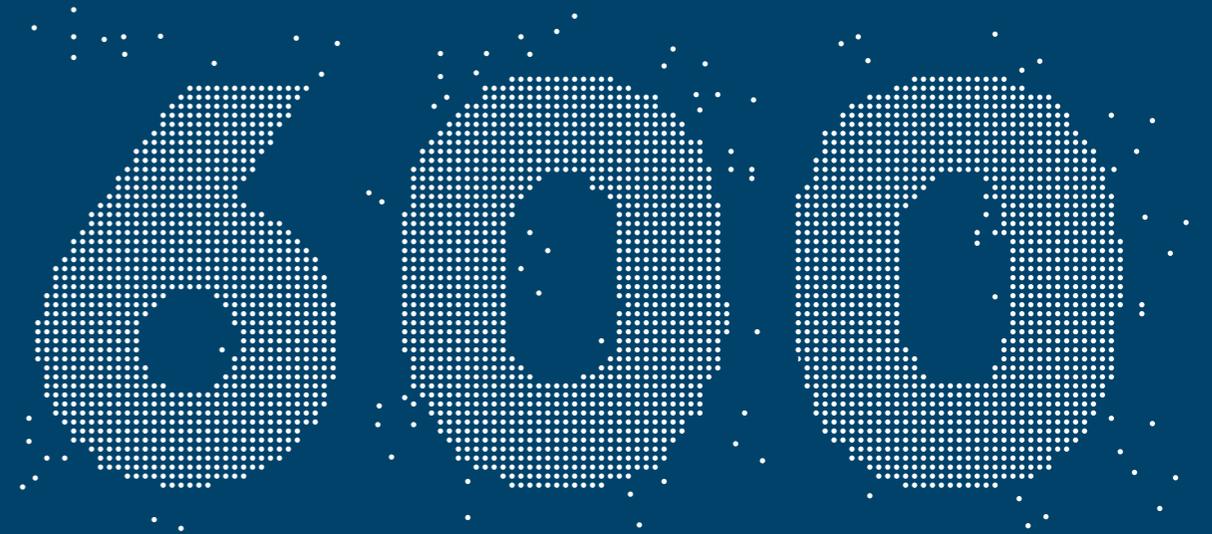
Well completion through courage and innovation

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 small company with great ambitions, TCO have 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 challenging existing 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



11 years of glass plug installations

Developed through experience gathered from around 600 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.

Well made. Worldwide.



ONE TEAM – ONE GLOBAL PRESENCE

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

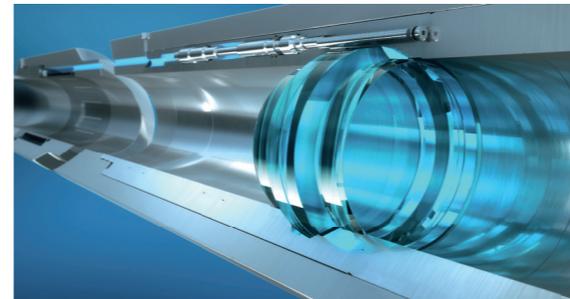
TCO is committed to growth and aims to serve more customers on an integrated, international basis – and to continuously improve the products and services we offer. Our global experience enables us to better understand the challenges faced by our customers and to provide even more effective and innovative solutions.

Services & Products

WELL CHALLENGES SOLVED THROUGH ADAPTIVE AND INNOVATIVE TECHNOLOGIES AND SERVICES.

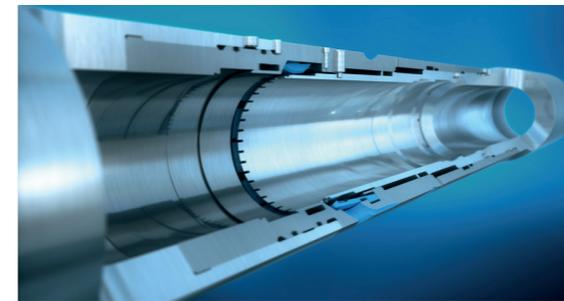
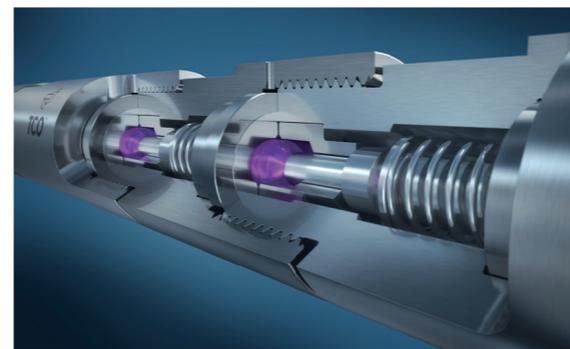
Disappearing Glass Barrier Plugs

TCO Disappearing Glass Barrier Plugs provide a total seal (ISO 14310Vo) against all fluids under extreme conditions. The disappearing features reduces operational risks and increase efficiency for the oil and gas field operators.



Chemical Injection Systems

TCO Chemical Injection Systems are based on the high-end TCO Chemical Injection Valves, which provide the hydrostatic support required to eliminate the U-tube effect in chemical injection systems. This ensures durability and effectiveness in the chemical injection system throughout the entire life of the well. TCO's first purpose-built injection device was developed in 2001, and the systems have been a benchmark for a wide variety of global operators ever since.



Multi Cycle Valve

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



Annulus Pressure Relief System

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

Wireline Services

TCO Wireline Explosive Services include pipe cutters, puncher systems, string shots and pipe recovery systems. TCO use selective switches and RA safe detonators as a standard. This to ensure surface safety. TCO supplies the newest developments in puncher technology with impressing large entrance holes and virtually no damage to outside tubulars.

Tubing Conveyed Perforating Services

TCO is one of the largest Tubing Conveyed Perforating (TCP) service companies in the North Sea with more than 120 TCP jobs performed since 2012.

TCO offer a full range of equipment for TCP services for P&A activities and reservoir perforating for production. Our complete line of TCP tools enable us to optimize perforations in any well. Our TCP operators have more than 20 years of experience and are highly experienced industry specialists, with the latest in equipment and technology to ensure the TCP needs of our clients are met safely and efficiently.



How We Operate

Case Study: TCO Glass Plug Saves Shell 24 Hours' Rig Time

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 pressure registered outside of these parameters would abort the opening of the plug. The actual downhole pressure 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.

Research & Development

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

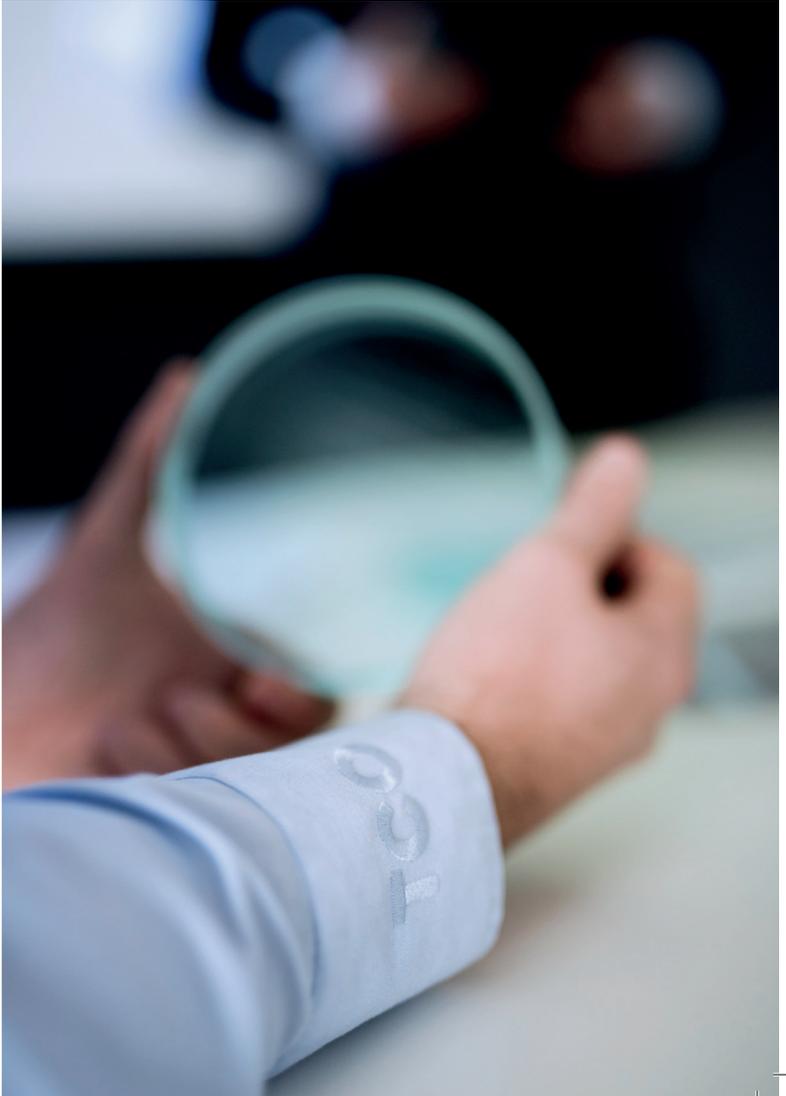
TCO's R&D department is capable of seeing projects through all stages from initial start-up to final implementation, including project management, design, calculations, simulations, rapid prototyping in both plastic and steel, extensive testing programs, validation, factory acceptance testing, and third-party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

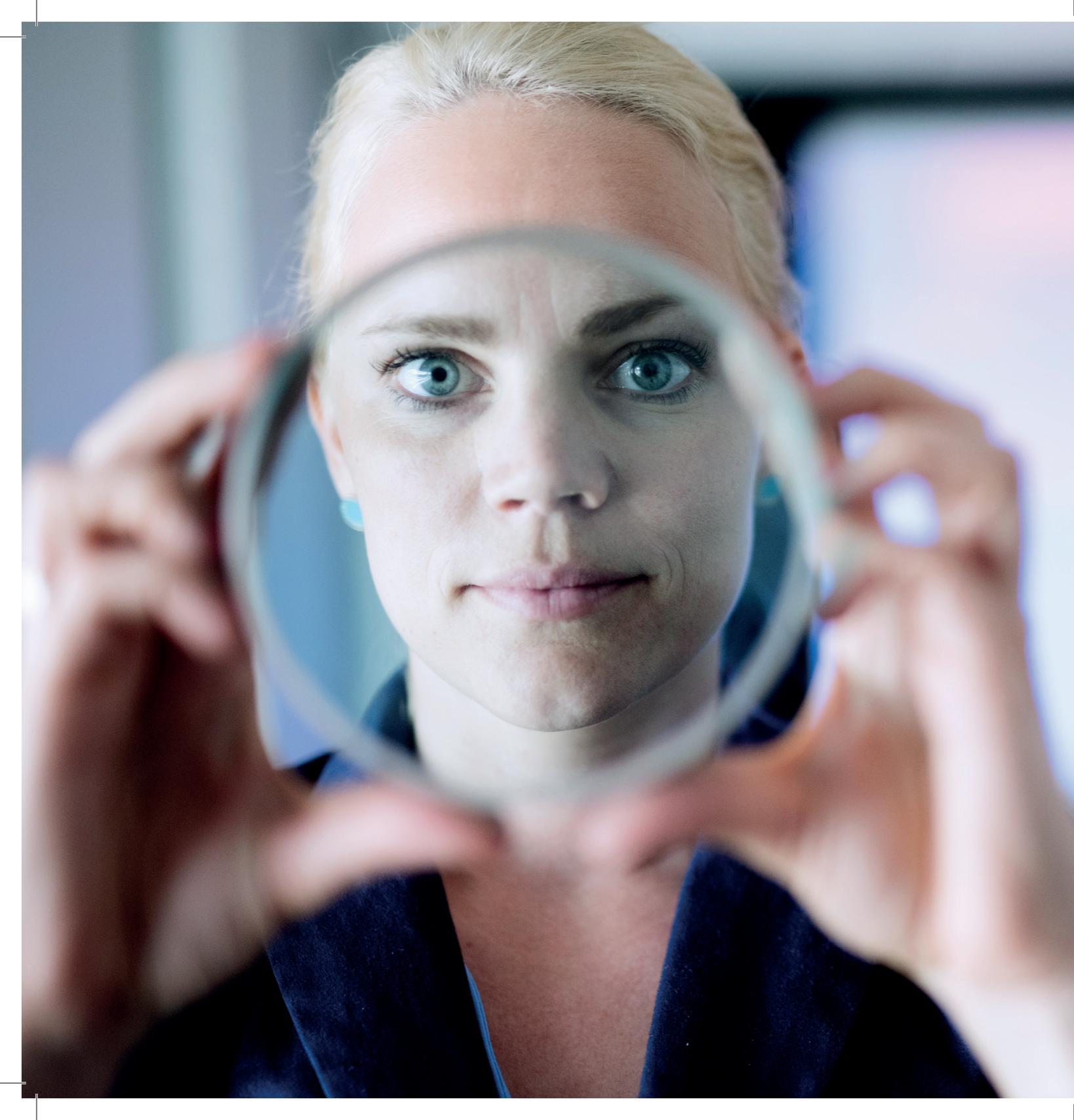
MANUFACTURING

TCO has in-house machining capabilities, which provide increased flexibility and ensure excellent quality control and shorter lead times.



Redefining Well Solutions





Career Opportunities

TCO is recognized as a leading innovator and challenger within the oil and gas industry. Led by our core values, we aspire to push the boundaries in our field, offering products and services that exceed expectations. We currently employ around 120 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.

TCO is a well completion and TCP specialist,
solving well challenges through adaptive
and innovative technologies and services.

tcogroup.com

