
TCO Downhole Chemical Injection System Portfolio

TCO Downhole Chemical Injection System is a modular system, tailored to the specific application. The system is offered as both permanent and retrievable solutions.

The devices and equipment TCO offer are:

HN-Series Check valve module

The HN-series is TCO's series of conventional products including V0 qualified check valves. The series is designed for permanent installation with TCO's Downhole Chemical Injection range.

Retrievable Valve

TCO's FN- and HN modules can be supplied in a wireline retrievable configuration to suit 1.5" ISO 17078 side pocket mandrels. The retrievable device utilises the same technology and qualified components as the permanent installed device.

HX Rupture Cartridge

TCO HX Rupture Cartridge is a balanced piston shear open device which allows integrity testing of the control line while running in-hole. As opposed to conventional burst discs, the device is completely debris free and can be calibrated to open at the operators down-hole requirements.

Control Lines, Spoolers, Sheaves & Rig Floor Installation Components

TCO supplies control lines, spoolers, sheaves and rig floor installation components. from third party suppliers to required customer specification.

Anchor Clamp

TCO's Anchor Clamp is designed to provide a robust solution to the challenge of anchoring and protecting control lines under any conditions.

FN-Series Back-pressure module

TCO FN-series ensure that the back-pressure device provides robust u-tube protection and prevent the hydrostatic u-tube of fluid through the injection line. The technology differentiates from conventional systems by separating the barrier from the back-pressure module. It is also designed to prevent damage to the back-pressure valve caused by cavitation and shattering.

Q-Series Multi-zone injection valve

TCO Q-series allows operators to inject chemicals through a single common control line in multi-zones. This, with a fixed flow to each point of injection regardless of upstream or downstream pressures.

Carrier Sub

TCO's Carrier Sub range is designed to provide a robust solution to the challenge of protecting splices, filters, injection devices or other accessories under any reservoir conditions.

Chemical Injection Mandrel

TCO's Chemical Injection Mandrel sees that the injection valve remains independent of the mandrel loading. This ensures that the integrity of sealing surfaces is maintained throughout the entire life of the well.

Chemical Injection Design Services

TCO provide Chemical Injection design services including Well Maps computer program and capabilities to design bespoke Chemical Injection Systems to client project requirements.

Control Line Fittings

TCO supplies external testable fittings and splices ranging from 1/4" to 1/2". The splices are designed to build minimal outer diameter and provide full bore inner diameter without jeopardising working pressure limitations.

Installation Personnel

TCO service engineers available upon request.

Chemical Injection Mandrel

Tubing Size	Bypass	Drift ID	Max OD
3,5"	2x44mm	same as tubing	5,91"
4,5"	2x44mm	same as tubing	5,91"
5,5"	2x44mm	same as tubing	7,56"
7,0"	2x44mm	same as tubing	8,33"

HN-Series Check Valve Module

Product Type	Outer Diameter	Rating	Temperature	Material	ISO 14998 Certification
HN-Series	<1,000"	10k psi (690bar)	150 °C / 302 °F	Inc 625/825	V0 (check valves)
HN-Series HPHT	<1,000"	15k psi (1035bar)	192 °C / 377 °F	Inc 718	V0 (check valves)

FN-Series Back-Pressure Module

Product Type	Outer Diameter	Rating	Temperature	Material	Certification
FN-Series	<1,000"	10k psi (690bar)	150 °C / 302 °F	Inc 625/825	TR2385
FN-Series HPHT*	<1,000"	15k psi (1035bar)	192 °C / 377 °F	Inc 718	TR2385

*= Qualification period Q2 2019

Retrievable Valve

Product Type	Outer Diameter	Rating	Temperature	Material	ISO 14998 Certification
Retrievable valve	1,5"	10k psi (690bar)	150 °C / 302 °F	Inc 625/825/718	V0 (check valves)