

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.

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.

FA-Series Absolute Back-pressure module

The TCO FA-Series is an absolute back-pressure device which provides u-tube protection and prevent the hydrostatic u-tube of fluid through the injection line. The technology is suited if you are experiencing topside pump capacity issues or have fluctuating well pressures. The valve will inject in passive mode until it needs to active and provide backpressure support during the late life production phase, where it will continue to provide steady injection pressure rates independent of production pressure decline.

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 & Subs

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. For installation of valves in series, the upper valves can be placed in the TCO carrier sub device

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.

The devices and equipment TCO offer are:

Chemical Injection Mandrel

Tube 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

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) TR2385 Qualified
HN-Series HPHT	<1,000"	15k psi (1035bar)	202°C/400°F	Inc 718	V0 (check valves) TR2385 Qualified

FN-Series Back-Pressure Valve

Product Type	Outer Diameter	Rating	Temperature	Material	ISO 14998 & Certification
FN-Series	<1,000"	10k psi (690bar)	150°C/302°F	Inc 625/825	V0 (check valves) TR2385 Qualified
FN-Series HPHT	<1,000"	15k psi (1034bar)	191°C/375°F	Inc 718	V0 (check valves) TR2385 Qualified

FN and HN Retrievable Valve

Product Type	Outer Diameter	Rating	Temperature	Material	ISO 14998 Certification
Retrievable valve	1,5"	8k psi (550bar)	150°C/302°F	Inc 625/825/718	V0 (check valves) TR2385 Qualified

FA-Series Absolute Back-Pressure Device

Product Type	Outer Diameter	Rating	Temperature	Material	ISO 14998 & Certification
FA-Series	<1,000"	10k psi (690bar)	150°C/302°F	Inc 625/825	V0 (check valves)
FA-Series HPHT	<1,000"	15k psi (1034bar)	175°C/347°F	Inc 718	V0 (check valves) API 19C1 CV1

Q-Series Multi Node Injection Device

Product Type	Outer Diameter	Rating	Temperature	Material	ISO 14998 & Certification
Q-Series	<1,000"	10k psi (690bar)	120°C/248°F	Inc 625/825	V0 (check valves)