

# RETRIEVABLE CHEMICAL INJECTION THROTTLE VALVE

DATASHEET  
CTV



# Retrievable Chemical Injection Throttle Valve (CTV)

- Remote operable
- Subsea retrievable
- Simple and rugged design
- Precise adjustable throttle mechanism. High turndown on flow rate adjustment
- For injection of wax, scale and corrosion inhibitors
- Field proven
- Chemical Throttle Valve can be designed as a separate diver/ROV retrievable unit or for mounting inside a control pod

## Basic Technical Specification

Basic design data	
Maximum working pressure	690 bar (10.000 psi)
Proof test pressure	1035 bar (15.000 psi)
Ambient pressure	250 bar (3.626 psi)
Operating pressure across CTV max/min	200 bar/10 bar (2.900 psi / 145 psi)
Design temperature	-10 to +70 °C (14 °F to 158 °F)
Operating temperature	-5 to +40 °C (23 °F to 104 °F)
Storage temperature	-20 to +50 °C (-4 °F to 122 °F)
Flow rate range	10 to 1200 cc/min
Flow ratio	Up to 100:1
Minimum flow	1 cc/min. depending on fluid viscosity and differential pressure
Chemicals	Corrosion/Scale/Wax/Demulsifier Inhibitors
Viscosity	10-500 cSt at seabed temperature
Density	880 to 2000 kg/m <sup>3</sup> (50 to 125 lb/foot <sup>3</sup> )
Contamination	Recommended cleanliness better than SAE AS4059 Class 10B-F, operability up to Class 12B-F. Cleaning of threads by mechanical scraper
Dimensions	CTV Assembly Drawings
Weight	Approx. 46 kg dry / 38 kg submerged (102 lbs / 84 lbs)
Materials of construction	
External parts wetted by sea water	Super Duplex SAF 2507
Internal parts wetted by chemicals	Super Duplex SAF 2507, Nitronic 60, Al.Bronze EN 1982-CC333G-GC, Tin Bronze EN 1982-CC483K-GC
Seals	PTFE, FFKM, POM
Operation	
Control	Electrical remote operated
Drive	Stepper motor with planetary gear
Time for full travel	Approx. 20 minutes
ROV interface	D-Handle, T-bar Handle, Fish tail-Handle, API 17D
Operating torque ROV	Min / Max - 100 / 200 Nm (73 to 147 ft/lbs)
Electrical motor safety margin	CTV will operate at 25% above max. operating diff. pressure 200 bar (2.900 psi)
Flow Meter	
Type	Absolute pressure transducers at each end of a fixed restriction
Measuring accuracy	Better than +/- 5 % of full scale flow range assuming known and constant viscosity
Restriction	Integrated in CTV
Position Indication	
Type	Calculation of position based on stepper motor drive pulses
Electrical Interfaces	
Connection	Tronic Digitron 4-pin MCE connector
Wires	Flying leads, 4 off (all 20 AWG)
Power	24 VDC +/- 4V, 12W nominal when actuator operating, typically 3W idling
Controller protocol	MODbus RTU, CANbus or Profibus DP
Controller signals, communication standard	IEC Standard RS485 (2 wires)
Hydraulic Interfaces	
Connection	National 1/4" metal/viton seal coupler
Receptacle	
Material	AISI 316
Dimensions, H x W x L	280 x 280 x 905 mm (.11"x11"x35.6") [See Receptacle house Assembly Drawing]
Weight	Approx. 59 kg dry / 52,5 kg submerged (130 lbs /116 lbs)