

Chemical Injection Flow Controller

FluidCom™

A Game Changer in Chemical Injection

FluidCom™ chemical injection solution provides optimal performance with an innovative and cost saving technology.



Application

The FluidCom is a fully automatic chemical injection controller for Scale Inhibitor, Corrosion Inhibitor, Emulsion Breaker, Antifoam and more.

Its unique patented technology is considered a worldwide game changer, enabling significant CAPEX and OPEX savings.

By ensuring reliable and accurate chemical dosage, the end users obtains a controlled and efficient use of production chemicals by optimizing the oil and gas production, improve water quality and secures system integrity.

[FluidCom Movie](#)

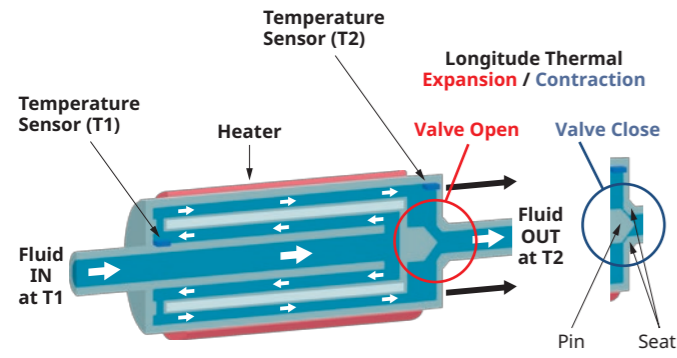
bit.ly/FluidCom



Features

- All-in-one unit
 - ✓ Flow Control Valve
 - ✓ Actuator
 - ✓ Flowmeter
 - ✓ Controller
- Stable and reliable injection rate – significant reduction in OPEX for operations
- Reduced size and weight
- Flow rate independent of variations in pressure, temperature, viscosity, and specific gravity
- Self cleaning function – No regular maintenance required, hence improved HSE
- Enables real-time control and monitoring/digitization

Operating Principle



Providing power to the heater makes the outer tube expand longitudinally moving the seat in relation to the pin enabling increased flow. Reducing power to the heater will make the outer tube retract and decrease the flow.

Temperature sensor (T1) measures the fluid temperature on the inlet prior to entering the heated section, Temperature sensor (T2) measures the fluid temperature exiting the heated section.

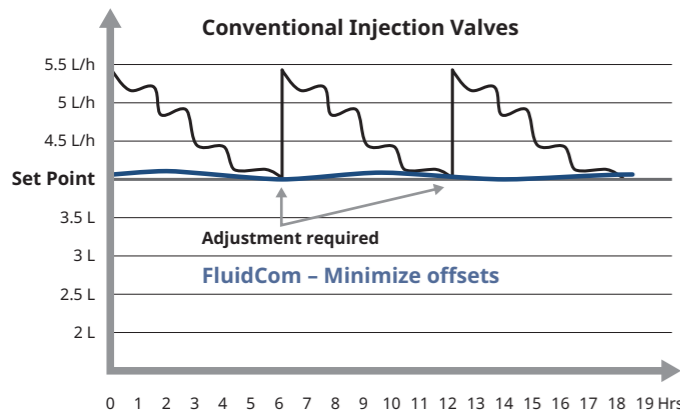
The amount of thermal energy absorbed by the flowing fluid through the device allows for the calculation of the Thermal Mass Flow. Thermal Mass Flow is calculated using the following equation:

$$m = \frac{Kq}{Cp(T2 - T1)}$$

where:
 m = mass flowrate Cp = heat coefficient of fluid
 K = meter coefficient T2 = temperature after heater
 q = electric heat rate T1 = temperature before heater

From this equation, FluidCom's internal control algorithm will control the heater power, and in turn control the fluid flow rate.

Prevent Fluctuations in the Chemical Injection Flow Rate



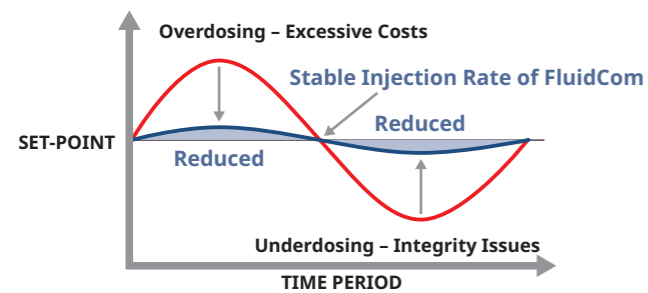
Yokogawa TechInvent AS identified that operators were finding it challenging to deliver stable and reliable injection rates using conventional technology.

In most of the cases, conventional injection rates are set higher than an optimal rate to prevent under-dosing.

This is mainly due to effect of changes in temperature, variations in differential pressure and cleanness of chemical injected.

FluidCom will provide a stable injection rate over time independent of changes in temperature, pressure, viscosity, and specific gravity of the fluid. This provides a huge OPEX cost savings and confidence that the system integrity is met.

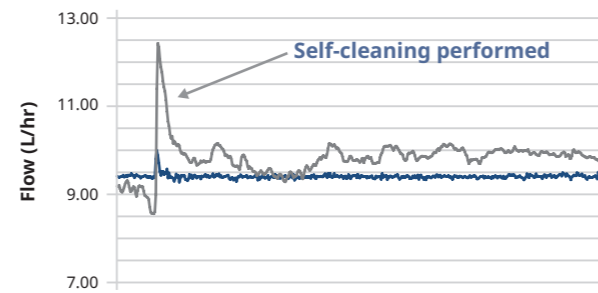
Benefit of using FluidCom



FluidCom has achieved:

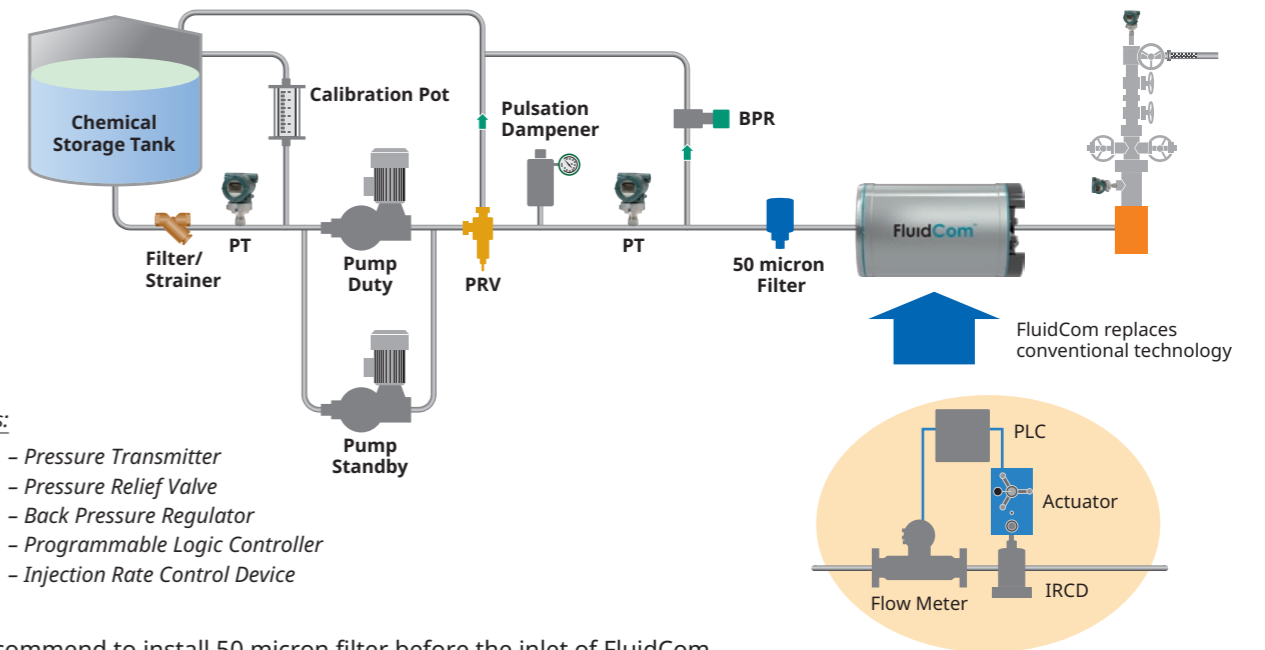
1. Stable chemical injection rate which minimizes overdosing and under dosing without frequent site visit to re-adjust the injection rate.
2. A virtually maintenance-free operation due to using minimal mechanical moving parts and self-cleaning capabilities.
3. The ability to adjust the injection rate setpoint locally and remotely.
4. The ability to view the flowrate locally and remotely.

Unique Self-cleaning Capability



- If clogging is identified, FluidCom will automatically increase the flow rate opening the outlet valve fully to allow for debris/deposits to be flushed over the valve seat.
- As shown above typically the auto clean function is shown by a spike in the flow rate and then a gradual return to the pre-determined chemical injection rate.
- The Self-cleaning functionality found in the FluidCom resolves the most common problem of plugging in a conventional valve which leads to periodic mechanical maintenance

FluidCom to replace Conventional Automated Injection Solution

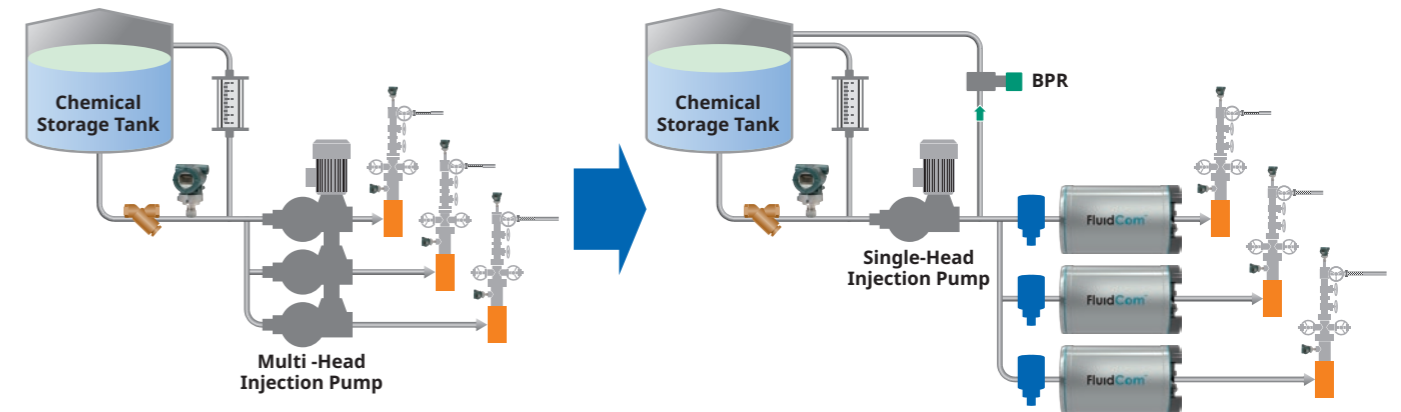


Notes:

- PT - Pressure Transmitter
- PRV - Pressure Relief Valve
- BPR - Back Pressure Regulator
- PLC - Programmable Logic Controller
- IRCD - Injection Rate Control Device

- Recommend to install 50 micron filter before the inlet of FluidCom

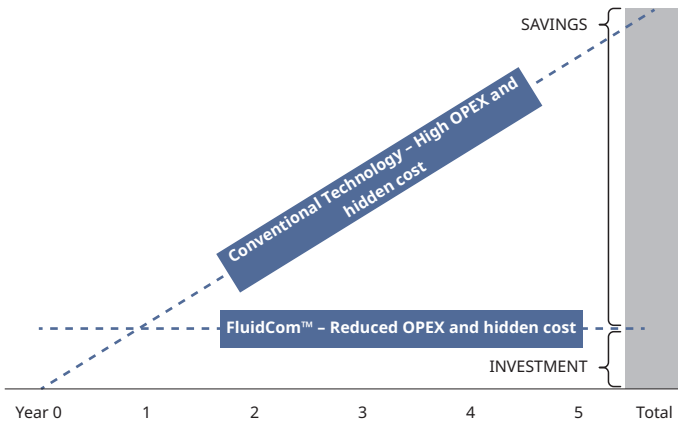
FluidCom to replace Multi-Head Injection Pump



Measurable Value Proposition

	Advantages	FluidCom Benefits
	Clogging prevention	Self-cleaning capability
	Low maintenance (Minimal moving parts reduce wear and tear)	Virtually maintenance free
	Stable injection (Independent of ambient temp. specific gravity, viscosity, pressure)	Autonomous valve control function
	High flow turn down ratio	50: 1 Full span with one unit
	Reduced foot print / size / weight	Compact in size, saves in weight
	Capital expenditure (CAPEX) and operational expenditure (OPEX) savings	Reduction in integration cost, scope, time, and chemical consumption

The FluidCom™ – Invest to Save



Retrofitting an existing chemical injection system with a FluidCom solution will in most cases result in a significant OPEX savings.

If you have one of the following issues with your current Chemical Injection system(s), then contact your local Yokogawa Office for a solution proposal.

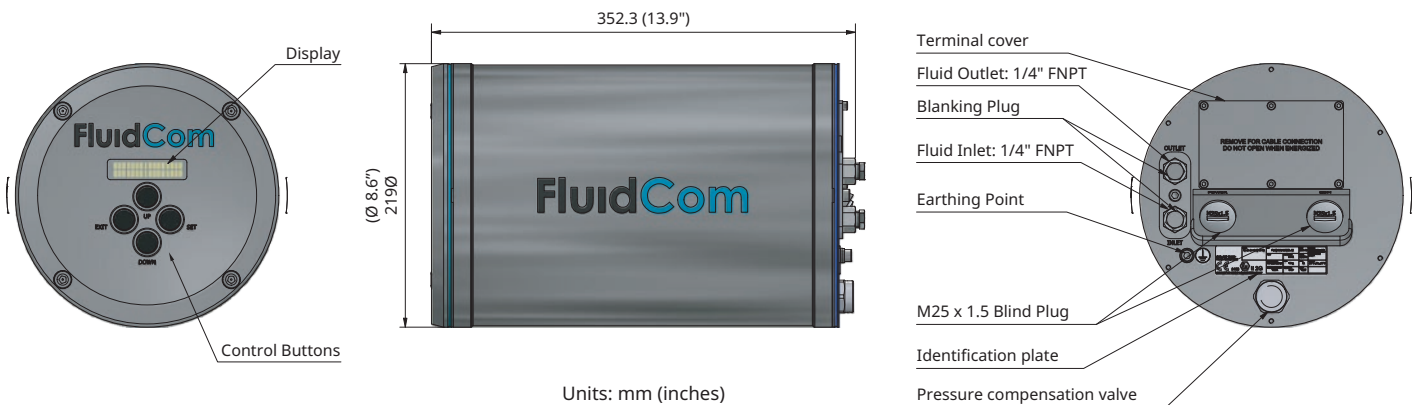
- Unstable injection rates
- Over/under dosing of chemicals
- Inaccurate flow adjustment
- Clogged control orifices
- High maintenance frequency
- Manual adjustment
- Maintenance parts/labour

General Specifications: FluidCom Model-S2:

Flow Range	Standard 0.6 to 30.0 L/h* (0.16 to 7.93 USGal/h)* (Extended flow range available)*
Design pressure	345 bar (5000 psi)
Operating temperature ambient	-20°C to +55°C (-4 to +131°F)
Material enclosure	AISI 316L SS
Material wetted parts	AISI 316 SS/PEEK/FFKM/Ceramic (others available on request)
Power supply	230 VAC 50/60 Hz
Dimensions and Weight	Ø219 mm x 353 mm, 17.5 kg (Ø8.6" x 13.9", 38.6 lbs)
Explosion proof	ATEX, IECEx, QPS (USA/Canada), INMETRO, PESO, EAC
Ingress Protection	IP66
Valve failure mode	Closed
Interface pipe connection	1/4" NPT Female (others available on request)
Communication	Local Display with Push Button
	4 to 20 mA, two-wire transmission with HART 7
	Optional 4 to 20 mA for set-point

* Extended flow range 0.3 to 60 L/h (0.08 to 15.85 USGal/h) may be available depending on the chemical properties. Please consult our sales representative for details

General Arrangement: Fluidcom Model-S2



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