

# Complete Chemical Injection Solution for the Oil and Gas Industry



## Chemical Injection Systems

Minimize measurement uncertainty, eliminate cost  
and reduce maintenance expenses



## Trust your chemical injection system to get the job done right, every time.

How much does your company spend every year on chemicals? For most, chemical injection is a sunk cost of production – it can be a challenge to track how much is spent versus how much chemical is actually required. Yet without preventive chemicals, scales and waxes could plug tubing and shut down facilities; hydrates could block production, costing up to \$1M/day in shut-in production as it's dissociated. Without corrosion inhibitors, complete loss of well or infrastructure could occur over time. With such severe consequences, producers consistently inject more than the recommended quantity of chemical.

Over-injecting expensive chemicals leads to high overhead costs. Many companies will over-inject by 20% the recommended dose as a safety precaution.



Maintenance is costly, especially on your offshore oil rigs. Unplanned outages decrease your facility's productivity leading to unrealized profits.



Traditional chemical injection skids respond to changing pressures with direct operator interference. By automating your devices with diagnostics, you can have confidence in your process.



When unexpected plugs shut down your facility, your maintenance costs can skyrocket. Alternatively, overdosing preventative chemicals can increase your operating costs causing unrealized gains in your process.

## The Micro Motion high pressure Coriolis meter fits your chemical injection needs



Emerson's Micro Motion High Pressure Coriolis flow meter takes your high pressure measurement to the next level. Designed with your chemical injection needs in mind, the HPC015 offers the highest measurement accuracy so you can be confident in your chemical usage. A three-tiered pressure offering, Micro Motion HPC015 is tailored to your process conditions and ensures your high pressure needs are met.

## MICRO MOTION



Consistency. It's what we strive for at Emerson and what you need in your process. Our high quality instruments ensure that your operation is running smoothly, regardless of process disruptions.

### Chemical confidence.

The HPC015 includes an in-line density measurement so you know the quality and concentration you are injecting, every time. The industry leading density measurement accuracy of  $\pm 0.001 \text{ g/cm}^3$  ( $\pm 1 \text{ kg/m}^3$ ), the Micro Motion Coriolis flow meter can optimize the chemicals you are using.

### Reduce your downtime.

A superior design, the Micro Motion Coriolis flow meter has no moving parts to eliminate maintenance downtime in your facility. Also, the lack of moving parts reduces the parts needed for replacement and helps with an inventory strategy by stocking less spares.

### Automate your process.

Advanced diagnostics within Micro Motion transmitters allow you to view your process in real time. With Smart Meter Verification, you can have confidence the flow meter is operating correctly and can reduce the need for meter calibrations.

### Keep your meter footprint low.

Space and weight are a premium for your operation - a lightweight and compact solution conserves valuable real estate on the platform. The HPC015 targets your close quarters making this small-but-mighty flow meter perfect for your offshore applications.



## Increase your plant safety; increase your bottom line.

Protecting your workforce and infrastructure by over injecting chemicals into your process has become an essential business practice. Understanding exactly what chemicals you are injecting and where they are headed is not only valuable for your workforce, but valuable to your earnings. Measurement confidence in your chemical injection solution ensures that you reach your operational targets, every time.

### What's your challenge?



Many companies will over-inject by 20% the recommended dose as a safety precaution. As a result, budgets for chemicals can be over \$400k the necessary amount.

### What's your opportunity?

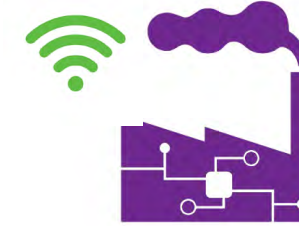


High accuracy chemical injection systems with a built in density measurement eliminates the need for additional measurement instruments and keeps your workforce safe on the job.

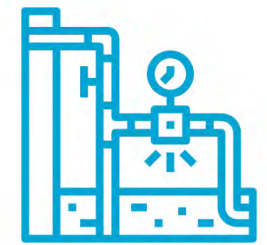
## Tailored solution for your offshore oil and gas facilities



**316L Stainless steel body**  
Eliminates corrosion from salt water.



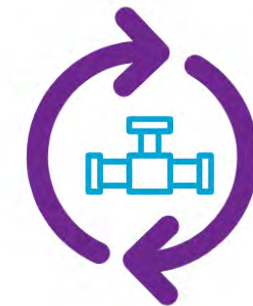
**Smart diagnostics**  
Gain insight into your chemical injection system with intelligent software.



**High pressure application**  
Tailored to fit a diversity of high pressure processes, the HPC015 offers three tiers of pressure ratings



**Reduced maintenance**  
Coriolis flow meters have no moving parts that could wear out over time or need to be replaced.



**Eliminate uncertainty**  
Consistent flow of chemicals to your production infrastructure regardless of process changes.

## Focus on your plant's safety

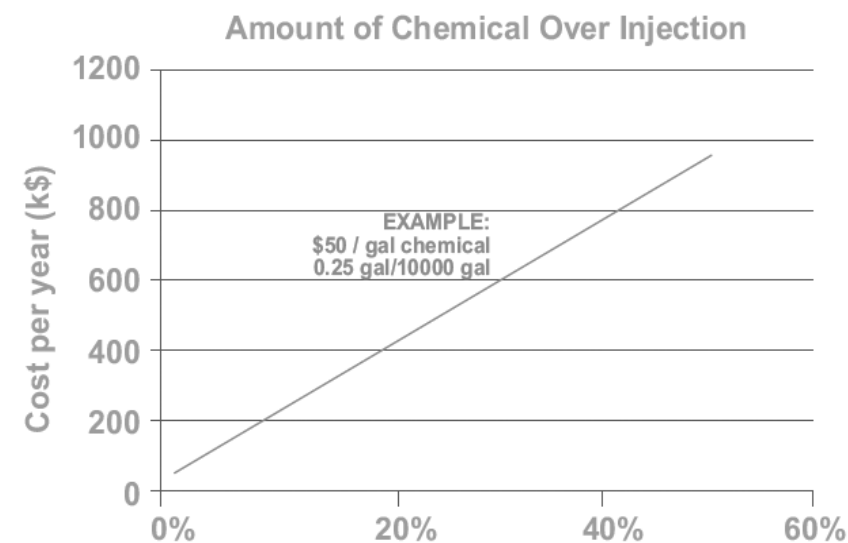
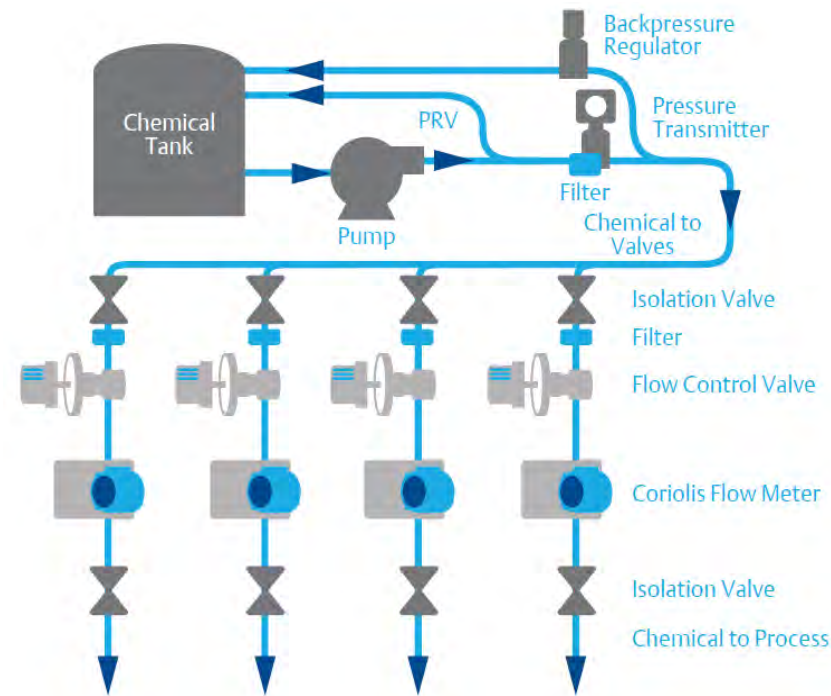


**Protect your infrastructure**  
Under injection in chemical injection systems risks catastrophic infrastructure failure.



**Instrument longevity**  
Engineered with robust, high-quality components ensure your workforce stays safe on the job.

## Emerson's Chemical Injection System



### Improve system reliability

- Reduce the over-injection of chemicals with a more accurate and repeatable measurement and control system
- Smart Meter Verification available to check system integrity without pulling meter out of service

### Increase operational efficiency

- Automate the injection process for more control by eliminating human error
- Eliminate spare parts and reduce downtime for maintenance and repair

### Features & benefits

- High pressure Coriolis flow meter technology able to handle up to 15,347 psi (1060 bar)
- Optimization of chemical usage with TESCOM 56 Series
- Predictive diagnostics and remote insight into performance of equipment
- Automatically compensate for changes in inlet pressure, outlet pressure, flow demand, temperature changes and provide accurate chemical flow rate control
- Reduced maintenance with no moving parts that could wear out over time or need to be replaced

## Micro Motion High Pressure Coriolis HPC015

- Up to +/- 0.1% mass/volume flow accuracy
- Flow range of 25-504 kg/hr (0.9-18.5 lb/min)
- 0.001 g/cc density accuracy
- Three tiered maximum operating pressures:
  - HPC015M - 6991 psi (482 bar)
  - HPC015N - 13960 psi (963 bar)
  - HPC015P - 15,374 psi (1,060 bar)
- CSA, IECEx and ATEX Approvals
- Stainless steel, 5700, direct-connect, and 2-wire transmitters available to suit any the needs of any application



## TESCOM 56 Series Flow Control Valve

- Flow rate range of 113.56 l/m / .005 - 30.0 gpm
- Inlet pressure up to 1034 bar / 15,000 psig
- Outlet pressure up to 1034 bar / 15,000 psig
- CSA, IECEx and ATEX Approvals
- Full stainless steel construction
- Kalrez® elastomers



## Rosemount Pressure Transmitters

- Pressure measurement up to 1379 bar / 20,000 PSI
- Burst pressure protection up to 3172 bar / 46,000 PSI
- Aluminum, stainless steel or polymer housing options
- Available with HART, WirelessHART, and FOUNDATION fieldbus protocols
- LCD Display, LOI, Safety Certification, and Advanced Diagnostic options
- ATEX, IECEx, CSA and other approvals available





## Elevate your plant infrastructure.

Here at Emerson, we know you value your bottom line. The cost of operational expenses can run your plant a high tab, with maintenance costs and unexpected shutdowns as the main causes. Alternatively, adding capital expenses to your infrastructure are risky to your unrealized revenue. The cost of CAPEX and OPEX can be offset with realized gains further down the road by introducing reliable instrumentation today. Our products help keep your plant up and running, eliminating sudden downtime and maintenance, regardless of process conditions.

### What's your challenge?



Unplanned downtime in your plant creates a financial impact on average of \$49 million annually.

### What's your opportunity?



With Micro Motion HPC015, coupled with the Smart Meter Verification technology, you can see your equipment condition and performance in real time to better predict your maintenance schedule.

## Industry leading intelligent diagnostics for all processes

### Smart Meter Verification



Smart Meter Verification™ provides an indication of meter health and performance before issues arise, enabling proactive and precise diagnostic insight.

### Data Historian



Data Historian onboard offers a complete audit trail and alert log to determine process issues. The real-time clock time stamps process data, alerts, Smart Meter Verification reports and audit logs.

### ProcessViz



Used with the 4200 or 5700 Micro Motion transmitters, ProcessViz will show you a snapshot of your process thus saving your technicians time and you money.

## Micro Motion transmitters give you a leg up over the competition.

### Two-wire 4200 transmitter



Micro Motion 4200 2-wire loop powered transmitter makes it possible to replace existing 2-wire flow devices with minimal effort and without incurring additional power or cabling costs.

### Best-in-class 5700 transmitter



Equipped with a stainless steel body, Micro Motion 5700 transmitters offer reliability for your offshore platform both inside and out. 5700 transmitters deliver top performing measurement technology and offer unparalleled support — ensuring total measurement confidence, valuable process insight and greater operational efficiency.



# Complete and cost-effective measurement solution for oil and gas industry.



Emerson has the right technology and expertise to help you solve your chemical injection challenges.

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