CONTROVAL

TECHNICAL DATA SHEET

INJECTION AND CONDITIONING

Chemical injection

Dosing packages for methanol, acids, inhibitors, diluent and water.

METHANOL · ACIDS · WATER · DILUENT · CHLORINE



Chemical injection skid

AT A GLANCE

The right dose, every time.

01
Dosing matched to your process flow

02
Pumps, tank and controls on one skid

03
Multiple pumps and chemicals possible

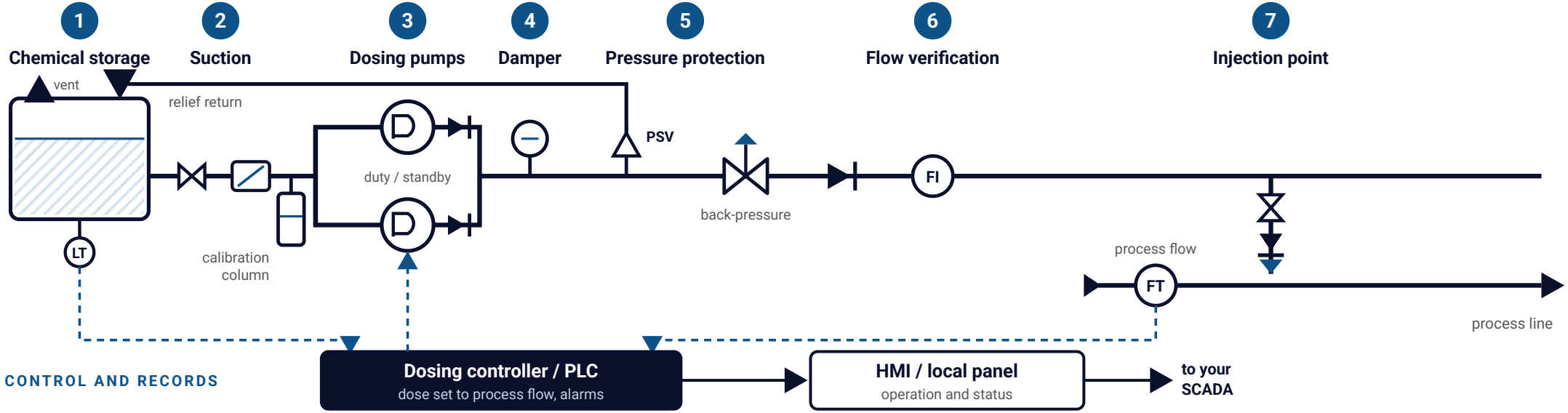
04
Designed to ASTM, ASME, ISO and API standards

How it works

Chemical injection skids deliver the chemical your process needs, at the rate the process calls for. We have built packages for methanol, sulfuric acid, water and diluent injection, and chlorine dosing.

We select pumps, tank and controls for your chemical, flow and pressure, and assemble everything on one skid.

Dosing skids are used in oil and gas, chemical, petrochemical, food processing, mining, pharmaceutical, pulp and paper, cement and water treatment facilities to inject or dose a precise amount of chemical, diluent or lubricant. The aim is the right dose: under or over dosing can damage the process.



Typical schematic configuration, shown for reference only. The final design, equipment, instrumentation and applicable codes depend on the client's process conditions, specification and project requirements, and are defined during engineering.

Step by step

In the order the fluid passes through it.

1 Chemical storage
A tank sized for your consumption, with vent, fill and drain connections and a level instrument.

2 Suction
An isolation valve and a strainer protect the pumps from debris. A low tank outlet keeps the pump suction flooded. A calibration column on the suction lets pump output be checked against a measured volume.

3 Dosing pumps
Metering pumps deliver the set dose. Duty and standby pumps, or one pump per chemical or injection point.

4 Pulsation damping
A pulsation damper smooths the pump pulses, for steadier flow and calmer piping.

5 Pressure protection
A relief valve returns flow to the tank if pressure rises. A back-pressure valve keeps discharge pressure steady.

6 Flow verification
A check valve prevents backflow. A flow indicator confirms the dose delivered.

7 Injection point
An injection quill places the chemical in the process line, with a check valve and an isolation valve.

CONTROL AND RECORDS

Control
Sets the dose from the process flow, runs the pumps, alarms on low level or pressure and reports to your SCADA.



Multi-pump chemical injection skid in our workshop
One metering pump per injection point, with manifolds and instruments, during assembly before factory acceptance testing.

Typical configurations and options

Service	Methanol, sulfuric acid, water, diluent, chlorine; inhibitors and other chemicals per project
Storage tank	Sized for your consumption; cylindrical or rectangular, horizontal or vertical; carbon steel, stainless steel or plastic; vent, fill and drain
Dosing pumps	Diaphragm or plunger metering pumps; duty and standby, or several pumps
Dose control	Manual stroke or speed, or automatic ratio to the process flow
Pulsation damping	Pulsation damper on the pump discharge, where needed
Pressure protection	Relief valve with return to the tank; back-pressure valve
Verification	Calibration column, flow indicator or flow meter
Injection point	Injection quill or nozzle with check and isolation valves
Level and alarms	Level gauge or transmitter; low-level and pressure alarms
Control panel	Local panel or PLC; serial and Ethernet to your SCADA
Area classification	Instruments, panels and wiring selected for the classified area
Containment	Drip tray or bunded base under the skid, as required
Components	We integrate Milton Roy and Pulsafeeder pumps, Swagelok, Yokogawa, Flowserve and Magnetrol, and consider your preference



Methanol injection skid, PDVSA
Stainless steel storage tanks with a metering pump on a common skid, ready for methanol service.

Standards and documentation

Designed to ASTM, ASME, ISO and API standards. The applicable codes are agreed per project.

TYPICAL REFERENCES

API 675	Controlled-volume metering pumps, where specified
API 674	Reciprocating positive displacement pumps
ASME B31.3	Process piping
ASME VIII Div. 1	Pressure vessels, such as pulsation dampers
API 520 / 521	Pressure-relieving devices and systems
NACE MR0175 / ISO 15156	Materials for sour (H2S) service

TYPICAL DOCUMENTATION PACKAGE

- ✓ P&ID
- ✓ General arrangement
- ✓ Instrument and pump datasheets
- ✓ Calculations
- ✓ FAT procedure and report
- ✓ Operation and maintenance manual

Factory acceptance test (FAT) in our workshops and site acceptance test (SAT) at the installation site.



Example: chlorine dosing package for a potable water tank

MAIN COMPONENTS

Chemical storage tank, positive displacement pumps with electric solenoid drive, pulsation damper for each pump, calibration column, ultrasonic level transmitter, rotameter flow sensor and transmitter, control panel and PVC interconnecting piping.

SCOPE

Detailed engineering, materials procurement, manufacture, equipment assembly, electrical and instrumentation work, tightness test and FAT.

DELIVERABLES

General arrangement drawings, structural frame and supports drawings, lifting analysis, control panel diagrams, piping arrangement drawings, FAT protocol, operation and maintenance manual and Data Book.

Our work

A selection of chemical injection skids we have built



Diluent injection skid, Ameriven

Diluent injection package with pumps, control valves and local panel, installed at site.

Real projects, photographed in our workshops and at site. Ask us for references in your application.

DELIVERED	
Methanol injection skid	**PDVSA**
Chemical and methanol injection packages	**ConocoPhillips**
Diluent injection and surge relief skids, José terminal	**Ameriven / Vepica**
Sulfuric acid injection skid	**Bauxilum**
Chlorine dosing skid	**Water treatment**

Need one built for your process?

controval.com

Send us fluid, flow, pressure and temperature, or just your idea. An engineer returns a proposed configuration.

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