ISO3171, API 8.2, IP 6.2 and ASTM D4177 Fast Loop - Bypass loop sampling system specification

The products upon which these specifications are based meet or exceed the requirements of:


We promote the use of dynamic performance monitoring (Can Weigh) which is referenced by the sections of the standards below.

The system complies with the requirements of ISO 3171, IP 6.2 and API 8.2. Where differences or conflict occur the higher specification standard has been used. System components which are required, or recommended by the standards, are marked with an asterisk (*).

It is assumed that the pipeline contents are sufficiently mixed as per the C1/C2 ratio requirements of the above standards. If not refer to the relevant spec for JetMix® system.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Reference Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 3171</td>
<td>9, 14.3</td>
</tr>
<tr>
<td>API 8.2</td>
<td>19, Appendix F</td>
</tr>
<tr>
<td>IP 6.2</td>
<td>3.10, 8.3</td>
</tr>
</tbody>
</table>
Fast Loop Sampling Equipment

All equipment marked as 'Withdrawable' is designed for installation by 'hot-tapping' to minimise the cost, time and impact on your operating procedures.

1) 1 off Jiskoot Withdrawable (Top Entry) Byscoop

Fabricated from carbon steel, welded and painted to Jiskoot standards. Inlet size 33mm (designed with a droplet size/inlet ratio according to ISO 3171) with an internal bevel and 'swans neck' profile to reduce bluff body effects and turbulence.

2) 1 off Jiskoot Fast Loop Sampling Skid Substantial

Carbon steel skid base, welded and painted to Jiskoot standards, upon which the following equipment would be mounted:

1 off Sampling Fast Loop

1", sized to provide a flow rate to maintain mixing and dispersion within the Sampling Loop.

2 off Sampling Loop Isolation Valves

1" ANSI 150lb RF anti static fire safe full bore ball valves to provide inlet and outlet isolation for the Sampling Loop. These isolation valves allow for the Sampling Loop to be isolated from the Cojetix® Pump loop and thus mixing can still take place while maintenance is carried out on the Sampling equipment if desired.

1 off Sampling System Enclosure

Designed to house the Cell Sampler, receivers and all ancillaries (Cell Sampler, flow indicator switch, two Sample Receivers, Receiver Weigh Beam, Auto-changeover SOV, stainless steel tube& fittings and junction boxes). There will be a solenoid receiver changeover valve for selecting the sample receiver in use. This enables samples of 12 litres to be collected. It includes two flexible hoses with quick connect couplings and a drip tray. Also included within the cabinet is a flow monitor with low flow switch. Small-bore stainless steel tube would generally be ¼". All internal cables would be HOFR flexible.

1 off Flow Indicator Switch

Carbon steel “flapper” type flow meter with switch to provide remote indication of either low flow or high flow. Flanged ANSI 150lb RF

1 off Cell Sampler

Jiskoot 210P Cell Sampler Pneumatically actuated positive displacement sampler; designed to be installed between two 1" ANSI 150lb RF flanges. The Cell Sampler is the same bore as the sampling loop* and provides 1ml "grabs" on every actuation and with a maximum "grab" rate of 100 per min. can sample 10 litres in under 2 hours*. The ‘3 step’ grab action provides a repeatability of +/-2%* regardless of variations in viscosity or process conditions. Samples are discharged from the bottom of the sampler to avoid water traps and cross contamination. The Cell sampler outlet is line balanced to maximise operating life.

1 set Cell Sampler Ancillaries

Required ancillaries for a pneumatically operated Series 210P Cell, including in-line relief valve, flexible hose, fittings, Exxet solenoid valve, instrument air regulator and bracket to mount and connect them.

2 off Sample Receivers

The Sample Receivers (type PR-53) have a maximum capacity 18 litres, to be filled to a maximum of 15 litres with allowance for 20% ullage.*

They come complete with pressure indicator, pressure relief valve and vacuum breaker. The Sample Receivers have a large opening to allow easy access for cleaning.
Manufactured from hygienic grade 304 stainless steel with smooth internal surface for minimal clingage. Each Sample Receiver weighs 6½ lbs dry and they are provided with connections for external mixer loop*, for connection to a Jiskoot Laboratory Mixer.

1 off CanWeigh System
The Jiskoot CanWeigh System provides on-line measurement of the sample mass in a receiver and is used to continually monitor the performance of the system*.

1 off Automatic Receiver Changeover System
Changeover is an additional function of a Can Weigh System. The three way changeover valve is pneumatically actuated by a supply switched by the attached solenoid valve. This assembly allows the selection of sample receiver in used to be performed by the InSpec Controller.

3) 1 off Laboratory Mixer (MS-53E)
Electrically driven laboratory mixer to be used in conjunction with a Jiskoot PR53 receiver.* The laboratory mixer draws off the fluid from the bottom of the receiver and pumps it through a static mixer and then returns it back to the receiver allowing a sub-sample to be drawn for analysis.

4) 1 off InSpec Sample Controller (Safe Area)
The InSpec Sample Controller is used to control the sampling process and can be supplied with the following options.

Blend trim control
This feature is used to optimise final product quality using an online analyser for parameters such as sulphur, density or viscosity.

Pump and valve control
The InSpec blender is able to communicate with a PLC and provide enhanced control of pumps and block valves.

Batch quality calculations
Calculated and flow weighted averaging values for mass, sulphur, viscosity and density.

Print option
This enables the print-out of a report at the end of the batch. The report is stored in the controller and is accessible until the next batch is finished. A data log can also be generated throughout the batch duration, logging up to 8 parameters.

Auxiliary control option
Provides automated control of a mixing or fast loop pump or auxiliary equipment.

Modbus networking option
Enables full remote access operation as a Modbus slave device supporting commands 03, 06 and 16.

Remote panel option
The controller front panel can be remotely mounted up to 1km from the main instrument and additional remote displays can be connected.

The InSpec Sample Controller has the following features:

Features
- Operator entered flow or automatic calculation of optimum set-point
- Tuneable ramp up and down generator
- Batch end optimisation of delivered product
- Integration into a client’s DCS
- Provides two tier alarms to warn or shutdown due to ratio deviations
- Blend enable input e.g. dead man’s handle
- Emergency Stop input
- Configuration and storage of 20 recipes for operator recall
- Calculation of product and actual stream of ratios, density, sulphur and viscosity contents
- Easy to read scrolling display with configurable bar-graphs
- Simple to use ergonomic controller
- Front panel can be remotely mounted
- Simple menu-driven wizard for ease of use and configuration
5) 1 off Byscoop Extractor

Extraction device designed to safely insert or withdraw the CoJetix® Nozzle and Quill.

6) 1 off Inturbine Flowmeter

Insertion type flowmeter providing direct flow rate measurement with 4-20mA output. Capable of measuring velocities from 0.25 to 8 m/s at viscosities of 0.5 to 150 cSt. Constructed from carbon steel seal housing and stainless steel support tube & impellor; Flanged 6" ANSI 150lb RF. Withdrawable under live process conditions when used in conjunction with a Jiskoot Hydraulic Extractor.