Sampling Valves and Systems

Inline Sampling Valves
Sampling Ball Valves
Reactor / Vessel Sampling Systems
Sampling Options
Inline Sampling Valves SIV

DN15 – DN150 / ½” – 6”

The Inline Sampling Valve SIV is available in a wide range of materials and has a durable design to guarantee safe performance even under extreme pressure and temperature. It is suitable for sampling of corrosive, aggressive, and gaseous media via a by-pass system or directly at the main pipeline.

Main Features
- Easy and safe operation
- No dead space for representative sampling
- Zero stem leakage provided by an innovative stem sealing mechanism according to EN ISO 15848-1 and TA-Luft (VDI 2440 / VDI 3479)
- Large outlet bore and adjustable spindle stroke
- Fugitive emission inspection port
- Adapter with quick clamp system
- Stainless Steel body
- Suitable for operating pressures up to 40 bar, depending on material specification
- Wide selection of options and accessories
- Compatible with closed sampling system
- Lockable handle lever or handwheel

Technical Data

Versions DIN, ISO ANSI
Flanges DIN PN16 / 40 resp. ANSI 150 lbs / 300 lbs
F/F DIN EN 558-1 range 1 resp. range 3 and ASME B16.10
Body Cast stainless steel 1.4408 (A351 CF-8M) or 1.4409 (A351 CF-3M) or alloys C-22, C-276, C-2000, Titanium Gr. 2 or Gr. 7
Spindle 1.4404 (SS316L) or alloys (see above)
Lining PFA, PFA-AS (conductive)
Spindle seal unlined only: PTFE-V, PTFE-R Stuffing box or bellow stem seal system

Options
- Metallic spindle seal for liquid media with solids
- Heating jacket
- Activated carbon filter
- Higher pressure ratings at request

Operating Conditions (depending on material selection/spindle sealing)
- Pressure: 0.1 mbar (0.014 psi) up to 40 bar (580 psi)
- Temperature: -40°C (-40°F) up to 280°C (536°F)

See page 6 and 7 for more options
Structure of the Valve

Operations:

Handwheel HW

Deadman lever DL (spring lateral and lockable)

Handwheel HS-S (spring lateral and lockable)

Linear stroke actuator FC

Spindle Options:

Encapsulated spindle

Solid spindle

Solid spindle

Body Styles:

Flanged, unlined

Flanged, lined

Wafer, unlined

Wafer, lined

Adapter Options:

Flanged, horizontal

Flanged, vertical

Wafer, horizontal

Wafer, vertical

See page 6 and 7 for more options
Sampling Ball Valves SSB
DN15 – DN100 / ½” – 4”

The Sampling Ball Valve SSB allows a predefined quantity of the media to be removed without process interruption. The optional purge connection guarantees easy cleaning of the wetted surfaces.

Main Features
• Full port design, no pressure drop
• Fixed sample volume of approx. 40 ml (1.35 oz)
• Sample isolated from process as valve is operated
• Only one opening to the atmosphere
• Lockable handle with two travel stops for easy 180° degree motion
• Mounting-flange according to ISO 5211 allows direct automation with pneumatic or electric actuators
• Zero stem leakage provided by an innovative live-loaded stem sealing mechanism according to EN ISO 15848-1 and TA-Luft (VDI 2440 / VDI 3479)
• Minimal components allow for easy maintenance
• Horizontal and vertical sampling position

Technical Data
Versions DIN, ISO, ANSI
Flanges DIN PN16 / 40
resp. ANSI 150lbs / 300lbs
F / F EN 558-1 Series 1, resp. ASME B16.10
Body Cast stainless steel 1.4408 (A351 CF-8M)
Lining PFA, PFA-AS (conductive)
Ball encapsulated with ETFE, options: PFA, PFA-AS (conductive) or alloys C-22, C-276, C-2000, Titanium Gr. 2 or Gr. 7
Volume 40 ml, options: 5 ml, 12 ml, 25 ml
Ball seat PTFE-T, options: PTFE-T-AS (conductive) PTFE, PFA
Ball seat spring-loaded

Options
• Heating jacket
• Active carbon filter
• Purge connection

See page 6 and 7 for more options
**Vessel Sampling Valves**

DN15 – DN100 / ½” – 6”

For taking representative samples directly from different storage vessels, stirring vessels, fermenters, bio-reactors and other containers without interrupting the operation.

**Main Features**

- Easy and safe operation
- Wetted parts made of stainless steel, PFA or PFA-AS
- Self draining design
- Zero stem leakage provided by an innovative stem sealing mechanism according to EN ISO 15848-1 and TA-Luft (VDI 2440 / VDI 3479)
- Fugitive emission inspection port
- Flanges according to vessel connection specifications
- Handwheel and handlever with spring to close function to provide fast and save operation
- Handwheel and handlever with lock-in position to provide correct handling
- Predefined sample volume possible
- Lockable handlever and handwheel

**Technical Data**

<table>
<thead>
<tr>
<th>Version</th>
<th>DIN, ISO, ANSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flanges</td>
<td>DIN PN16 / 40 resp. ANSI 150 lbs / 300 lbs</td>
</tr>
<tr>
<td>Body</td>
<td>Cast stainless steel 1.4408 (A351 CF-8M) or 1.4409 (A351 CF-3M) or alloys C-22, C-276, C-2000, Titanium Gr. 2 or Gr. 7</td>
</tr>
<tr>
<td>Body lining</td>
<td>PFA, PFA-AS (conductive)</td>
</tr>
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</table>

Higher pressure ratings on request

**Operating Conditions** (depending on material selection)

- Pressure: 1 mbar (0.014 psi) up to 16 bar (232 psi)
- Temperature: -40°C (-40°F) up to 200°C (400°F)
Options for Sampling

Our sampling valves can be enhanced with a variety of options in various designs.

SSO-CA Safety Cabinets
Our stainless steel safety cabinets are available in several versions. Vent and drain connections (G1/2") are standard. Viewing windows are made of ESG safety glass with EPDM seals to offer optimum visibility and protection.

Versions
- Small: 300x200x150 mm
- Large: 400x300x200 mm
- Polypropylene with PVC or glass windows

BCS Bottle Closure System
Our BCS seals the sample bottle within a safety cabinet providing greater safety for the end user. The sampling and closing of the bottle takes place in a closed safety cabinet. The bottle is moved to the adapter via external operating elements and the cap can be screwed on simply and intuitively.

Bottle Support
For hot media or unthreaded bottles. Compatible with all sampling valves. Allows easy and accurate bottle placement.

Metal Safety Basket
The metal safety basket protects the bottle at exposed sampling valves.

Purge Connection
Easy to use and efficient. The purge connection allows the adapter to be cleaned in between samples, reducing the risk of cross contamination. The bottle can also be purged with an inert gas.
SSO-PI Piston Injector
The SSO-PI Piston Injector is suitable for sampling and transporting toxic and aggressive media, taken from pipelines under pressure or vacuum.

The Piston Injector also allows the return of the medium or the inoculation of up to 100 ml additives up to a line pressure of approx. 5 bar (73 psi).

Each SSO-PI Piston Injector comes in a carrying case with numerous accessories.

SSO-SC Collector
Can be used in any position in combination with Inline SIV to take samples under high pressure.

Details:
- All stainless steel SS316L
- Robust and safe construction
- SS Needle valve
- Sample volume 100 ml / 250 ml

SSO-NA Needle Adapter
The SSO-NA needle adapter protects the user from toxic emissions. It can be installed horizontally or vertically.

Details:
- Can be combined with safety cabinet
- Wetted surfaces made of SS316L or Hastelloy C
Reactor Sampling Systems SRS
DN25 – DN100 / 1” – 4”

For safe, representative and closed sampling of liquid media from reactors and vessels – reliable and fast, without process interruption.

Main Features
• Simple and safe sampling from tanks and reactors
• Application-specific system design
• No dead space for representative sampling
• Compact design
• Advanced system for mounting additional customer specified components
• User-friendly design with maximum safety
• Permanent monitoring possibility before and during sampling

Safety
SRS systems from Swissfluid meet the highest safety requirements. The self-draining unit is mounted at the top, eliminating the possibility of leakage. In addition, the unit is easy and safe to operate by the user.

Operating Conditions SRS-P (depending on material selection)
• **Pressure:** Main Valve: 500 mbar (7.25 psi) up to 16 bar (232 psi)
  Sight Glass Unit: 500 mbar (7.25 psi) up to 10 bar (145 psi)
• **Temperature:** -40°C (-40°F) up to 200°C (392°F)

Technical Data
Version        DIN, ISO, ANSI
Flange         DIN PN16 / PN25 / PN40 resp. ANSI 150 lbs
Lining         PFA, PFA-AS (conductive)
Glass cylinder Borosilicate
Hollow ball / seat PTFE / FFPM (Perfluor)
Sample volume  150 / 250 ml
Pump           PTFE, PTFE-AS (conductive)

Modular Design
SRS Reactor Sampling Systems are available in the following versions:

**SRS-P** (PFA-lined)
Sampling is carried out via additional fittings by means of vacuum or overpressure.

**SRS-P-P** (PFA lined, with PTFE diaphragm pump)
Automation of a loop system. Sampling is carried out by forced circulation of the process media by means of a compressed air diaphragm pump.

This system takes the desired sample with vacuum or overpressure. A wide range of accessories are available for the basic versions. Each system is tailor-made according to detailed specifications.

Operating Conditions SRS-P-P (depending on material selection)
• **Pressure:** Main Valve: 500 mbar (7.25 psi) up to 16 bar (232 psi)
  Pump: up to max. 7 bar (102 psi)
• **Temperature:** -40°C (-40°F) up to 120°C (248°F) pump dependent
**SRS-P Sampling System automated**
The fully automated version of the SRS-P allows pre-purging or cleaning of the entire system. It also has an integrated pH/temperature or Redox port. Robust construction, assures easy and safe operation at any time.

**SRS-P-P Sampling System with Pump**
Separate flow and return lines ensure greater stability and flexibility for a compact installation. pH/temperature or redox measurement are additional options.

**SRS-P-P Sampling System automated with Pump**
Suction line and pressure line are separate allowing a direct and representative sample in the loop. Main valves are automated for easy and safe operation.
SRS-P-E Sampling System for Reactors and Vessels

The SRS-P-E is lightweight, economical and is suitable for almost all vessels and reactors. It can be configured many different ways.

Cutaway Model showing Options

Functionality
The liquid is conveyed with pressure or vacuum through the opened main charge valve (1) into the sight glass (2).

After the maximum level is reached, the main charge valve (1) is closed and the desired sample is emptied through the inline sample valve (3) into the laboratory bottle (4). Residual gases are discharged via the venting connection or swing back into the process via the gas return line (5).
SRS-P-P Sampling System with Pump for Reactors and Vessels

The SRS-P-P excels with simple operation and variable sampling. The pump generates a constant flow and allows multiple samples to be taken in one cycle.

Cutaway Model showing Options

Functionality
The self-priming compressed air diaphragm pump (1) pumps the liquid from the reactor/container through a suction hose (2) into the sight glass unit (3) and then returns it to the reactor/container via a loop.

During the circulation, a continuous, representative sample can be taken via an inline sampling valve (4) into a lab bottle (5), additionally with integrated pH/temperature/redox measurement, without interrupting the process.
Sampling-Station SSO

DN8 – DN25 / ¼” – 1”

Sampling station in custom built according to application. By separating a fixed volume from the main flow it offers a representative sampling of pressurized liquid media without compromising the safety of the operator.

The sampling station SSO is easy to install and operate. Depending on customer requirements, extended versions with additional options and accessories are available.

Main Features
• Sampling systems for liquid media
• Easy operation and purge
• Additional safety for operator and environment
• Contamination-free sampling of toxic media
• Forced control functions «Closed – Sample – Purge» eliminates handling errors
• Sampling at a high system pressure
• Pre-dosing of the sample volume

Technical Data
Versions DIN, ISO, ANSI
Pressure PN16 / 25 / 40 / 64 / 100,
ANSI 150 / 300 / 600 lbs
Connections Flange, Thread, Quick clamp
Materials Stainless steel 1.4404,
AISI 316, AISI 316L

Options
Installation Mounting stand, cabinet
Materials Alloy 400 and others
Additions • Fixed volume container
  • Heating- or cooling jacket
  • Safety cabinet
  • Needle adapter
  • Activated carbon filter
Connections customer specific

Operating Conditions (depending on material selection)
• Pressure: 0.1 mbar (0.014 psi) up to 124 bar (1800 psi)
• Temperature: -100°C (-148°F) up to +300°C (+572°F)
Sampling-Stations SSO

For representative sampling of gaseous or liquid media, we offer systems developed specifically for the application and manufactured according to the customers requirements.

They enable safe and representative sampling and protect operators and the environment.

Main Features
- Zero emission and representative samples
- Closed sampling systems for gaseous and liquid media
- Easy operation and purge
- Additional safety for operator and environment
- Contamination-free sampling of toxic media
- Forced control functions «Closed – Sample – Purge» eliminates handling errors
- Sampling at high system pressure

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</tr>
</tbody>
</table>

Options

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<th>Installation</th>
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</tr>
</thead>
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</tr>
<tr>
<td>Additions</td>
<td>Mobile sampling cylinder</td>
</tr>
<tr>
<td></td>
<td>Fixed pre-metering container</td>
</tr>
<tr>
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<td>Heating- or cooling jacket</td>
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<tr>
<td></td>
<td>Safety relief unit for overpressure</td>
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<tr>
<td></td>
<td>Systems for several sampling points</td>
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<tr>
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Operating Conditions (depending on material selection)
- Pressure: 0.1 mbar (0.014 psi) up to 124 bar (1800 psi)
- Temperature: -100°C (-148°F) up to +300°C (+572°F)
Custom Variations

SSO-C Combined

In combination with the SIV, inline sampling is guaranteed. In addition, the sample can be drawn over the loop (also gaseous).

The closed system allows the safe drawing of an extremely representative sample. In addition, handling and rinsing is very simple.

SSO-P Panel

Available in different variations according to customer requirements.

This version allows several samples to be taken from different sampling points. The quick-closing locking mechanism allows the sample cylinder to be removed safely and quickly. The system can easily be switched to purge with flow indicator during the whole process.

SSO-S with PP Safety Cabinet

The sample is drawn over a needle adapter by septum.

The PP safety cabinet offers additional full protection for the operator, who can operate the sampling station from outside.

SSO-S with Heating Jacket

System with forced draining in the safety cabinet.

For temperature-critical media, a quick disconnect sampling cylinder with heating jacket is mounted in the protective cabinet.
Customized Linings and moulded Parts

For pumps, piping components, vessels, valves etc.

We only use virgin fluoropolymer material (no reprocessed material), in order to achieve and ensure an equally high quality standard at any time. Solid parts as well as encapsulations and linings are made of corrosion resistant metal-fluoropolymer combinations such as PTFE, PTFE-T (modified), PTFE-AS (conductive), PFA, PFA-AS (conductive), PFA-HP (high purity), PVDF, PP, ETFE.

Special Cleaning and Testing Methods

As a manufacturer of high quality process valves we meet the demands of the market and develop cleaning procedures designated for chlorine, high purity and oxygen service as well as «oil and lubrication free» applications. After the successful pressure tests with inertgas, the valves are cleaned, dried, individually packed and marked for the intended service. Each process is designed to achieve the highest standard for our product.

Quality

For our customers, quality, safety and environmental sustainability are the primary concerns. International standards, regulations and internal examination guarantee the compliance to these specifications. The certified management system according to ISO 9001:2015 with the integrated, European pressure equipment directive 2014/68/EU (PED) support us in our cooperation with partners and customers around the world. A comprehensive modular assortment of Swiss-made quality products is at your disposal for solving problems efficiently in applications for various industries such as chemicals, petrochemicals, pharmaceutical products, biochemistry, semiconductors, pulp and paper, power generation, mining, etc. Throughout all manufacturing and testing stages, Swissfluid maintains the highest levels of quality of its parts and finished products.

Further Certificates:

- ATEX
- SIL Declaration of compliance
- EAC TP 010/032
- CRN (Canadian Registration Number)

ISO 9001:2015
PED 2014/68/EU
TA-Luft VDI 2440
ISO 15848-1
Core Competence

Our focus lies in the area of specialized plastic-lined products that are used for the most severe corrosive or abrasive applications. Our valves and valve systems have been designed for maximum longevity and require little or no maintenance, resulting in low total cost of long-term ownership. Thanks to the modular design of our variable components we often arrive at customer-specific solutions using standard products. Driven by our penchant for innovation, our engineering capabilities keep pace with constantly changing technical, economic and social requirements. We are guided by our customer’s wishes. We specialize in recognizing market-driven requirements and arrive quickly at products that meet or exceed these requirements. Our strategic orientation is geared towards customer service and professional advice.

Swissfluid AG in Lenzburg, Switzerland comprises over 5000 m² (50’000 ft²) of manufacturing, assembly, testing, inventory and office space. Our large inventory of raw materials at our Swiss headquarters keeps manufacturing times to a minimum. Having production and administration under one roof guarantees efficient and flexible handling of worldwide inquiries and orders. Being a highly specialized enterprise we see our call of duty and motivation to offer the customer market-relevant products and services. Closely following customer specifications, valves are assembled and tested at our facility.

Swissfluid (USA) Inc., strategically located in Houston TX, serves our North American customers with an expert sales team, extensive inventory, assembly, automation and repair capabilities.

Swissfluid (China) Co. Ltd., our subsidiary company in Shanghai holds the responsibility for sales and the local support of our customers in the Chinese market.