Level | Pressure | Flow | Temperature | Liquid Analysis | Registration | Systems Components | Services | Solutions

Technical Information

ASP Inline

Sampler Assembly
Assembly for extracting samples from pressurised systems

Application

ASP Inline is an assembly for extracting liquid samples from pressurised systems, such as
- Pressurised piping
- Pressurised tanks

ASP Inline is suitable for extracting samples from nearly all liquids:
- Water, wastewater, sludge
- Acids, alkalis
- Liquid foodstuff, e.g. beer, milk, wine

Your benefits

- Operating pressure up to 6 bar
- Compact design
- Ideal for combining with the ASP Station 2000 stationary sampler
- No O-ring seals, which means long operating times and easy maintenance
- Simple installation directly at the piping via flange or welded connection
- Volume can be set individually per extractions
- Process-oriented adjustment thanks to various material, design and equipment options
- Valid operation by automatic cleaning function

TI100R/09/en
No. 51005518

Endress+Hauser
People for Process Automation

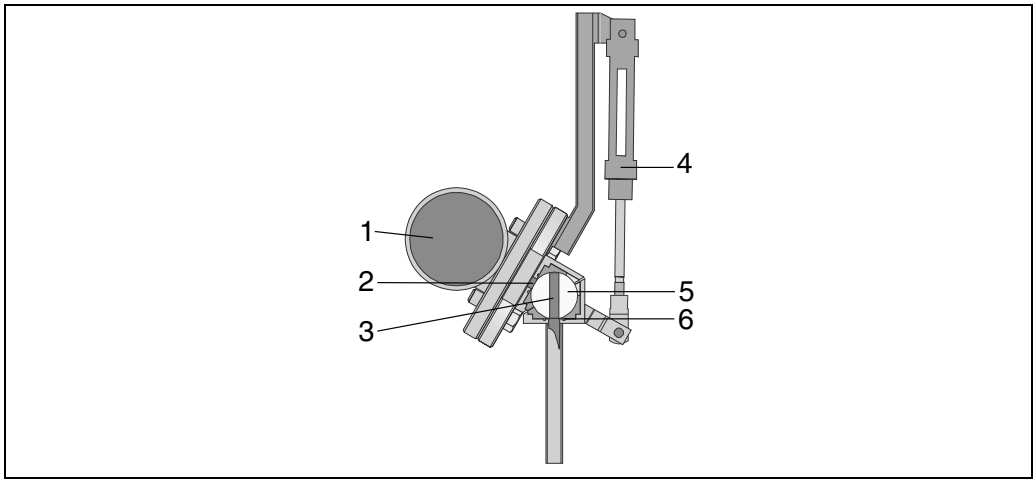
Function and system design

Sampling principle

The ASP Inline sampler assembly allows for fully automatic sampling of liquids from pressurised systems up to 6 bar and forwarding of the samples, e.g. to stationary samplers.

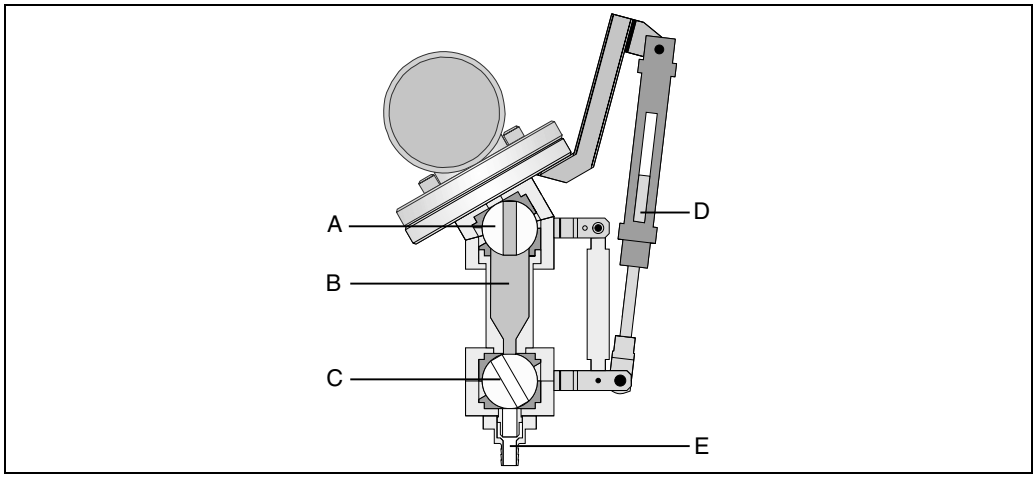
Sampling system

The ASP Inline sampler assembly is available in versions with a sample volume of 5 ml or 50 ml per sample:



Sampler assembly components with 5 ml sample volume

Item 1: pressurised pipeline
Item 2: intake bore
Item 3: sample chamber
Item 4: pneumatic drive
Item 5: dosing ball
Item 6: drain hole

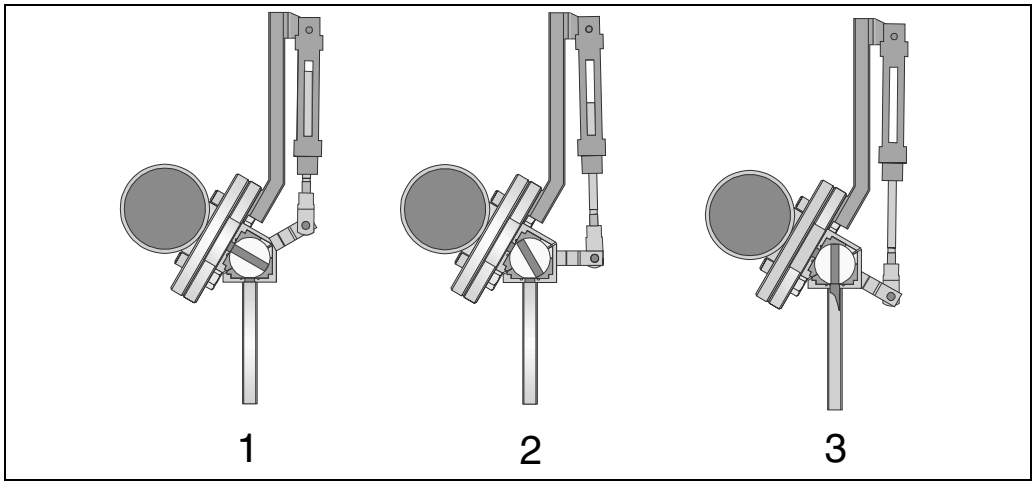


Sampler assembly components with 50 ml sample volume

Item A: upper dosing ball
Item B: sample chamber
Item C: lower dosing ball
Item D: pneumatic drive
Item E: drain hole

Sampling principle 5 ml version

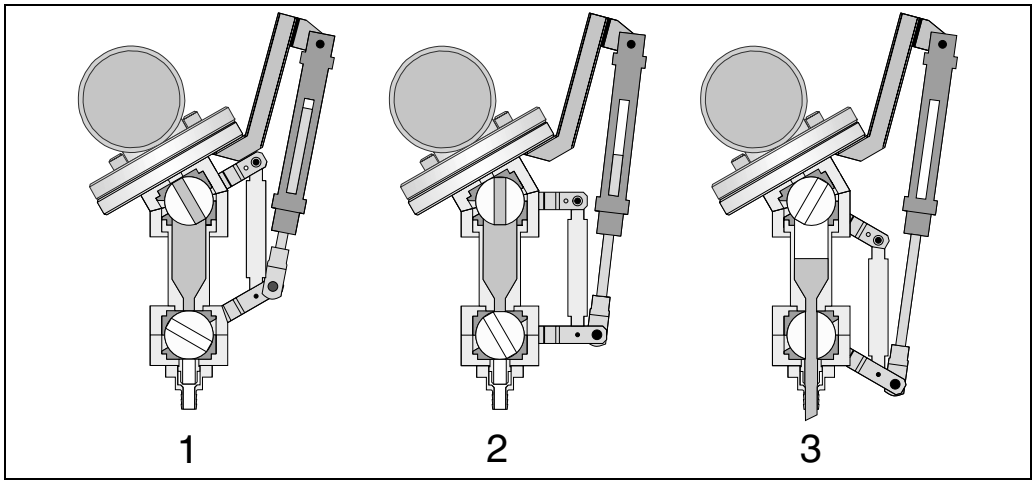
Sampling procedure for ASP Inline Sampler Assembly with 5 ml sample volume:



1. **Sample chamber is filled:**
   The pneumatic drive rotates the dosing ball into the flow direction of the pressure piping. The sample chamber is filled with sample liquid through the intake bore.
2. **Sample chamber is relaxed:**
   The drive rotates the dosing ball out of the flow direction of the pressure piping. This returns the sample chamber to atmospheric pressure.
3. **Sample chamber is emptied:**
   The drive rotates the dosing ball to the drain position. This empties the sample liquid out of the sample chamber via the drain hole. The sample chamber and the drain pipeline can optionally cleaned with compressed air or rinse water.

Sampling principle 50 ml version

Sampling procedure for ASP Inline sampler assembly with 50 ml sample volume:

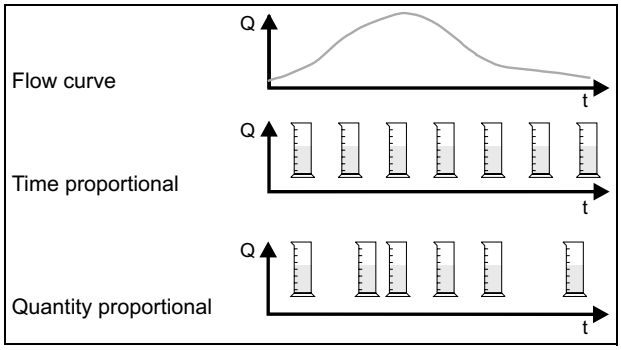


1. **Sample chamber is filled:**
   The pneumatic drive rotates the upper dosing ball into the flow direction of the pressurised pipeline. The sample chamber is filled with sample liquid through the intake bore. The lower dosing ball shuts off the sample chamber from the drain hole.
2. **Sample chamber is relaxed:**
   The drive rotates the upper dosing ball out of the flow direction of the pressure piping and shuts off the intake bore. The sample chamber is returned to atmospheric pressure. The lower dosing ball continues to shut off the drain hole.

3. **Sample chamber is emptied:**
   The drive rotates the lower dosing ball to the drain position. This empties the sample liquid out of the sample chamber via the drain hole. Here, the upper dosing ball shuts off the intake bore. The sample chamber and the drain pipeline can optionally cleaned with compressed air or rinse water.

Sampling types

The ASP Inline sampler assembly is controlled by an external control unit, for example with an ASP Station 2000. Here, sampling is triggered by a signal from the relay output of the ASP Station 2000. The ASP Station 2000's timer function allows for sampling at defined times. Samples can be extracted in proportion to quantity, dependent on a measured flow rate. Sampling can also be triggered by an external signal, for example in case of a limit value violation.

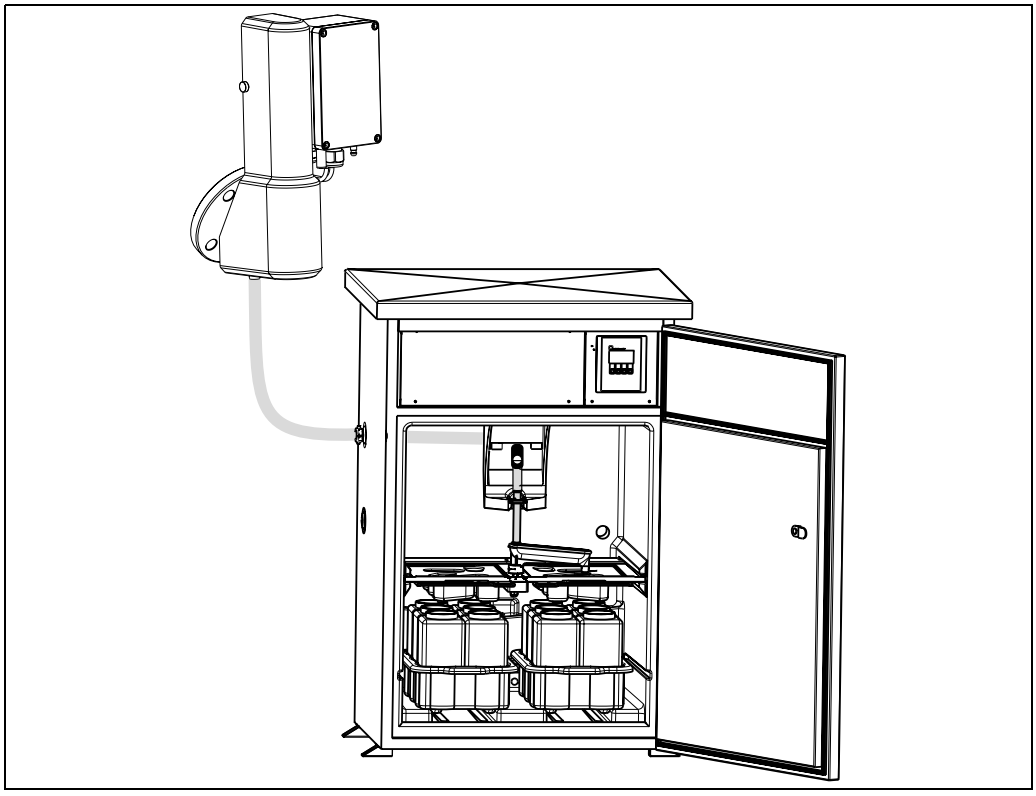


Time proportional:
A constant sample volume is extracted at constant time intervals.

Quantity proportional:
A constant sample volume is extracted at variable time intervals.

Sample distribution

Optionally, the sample can be drained into an ASP Station 2000, distributed into sample bottles and stored thermostatically. The drain hose is fed as a continuous length from the ASP Inline sampler assembly to the distribution tap.



ASP Station 2000 sample distribution

Dosing unit

Dosing volume	5 ml or 50 ml (option) per sampling
Dosing accuracy	± 5% of the set value.

Inputs

1 control input
Valve "rinse water" (optional)
Valve "compressed air" (optional)

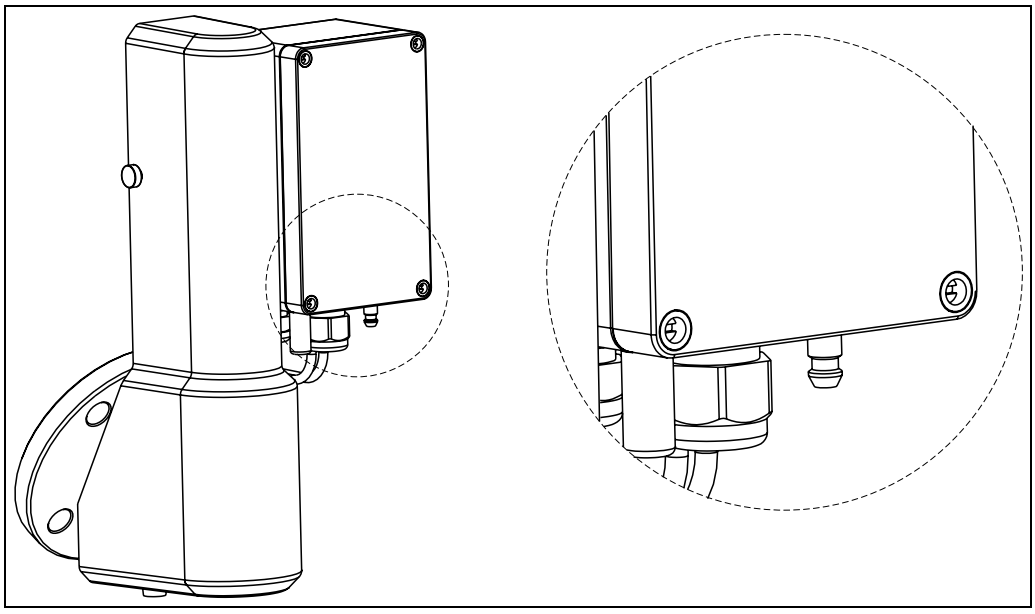
Outputs

1 signal output "cylinder up"
1 signal output "cylinder down"

Power supply

The ASP Inline sampler assembly is driven pneumatically by compressed air.

Pneumatic connection

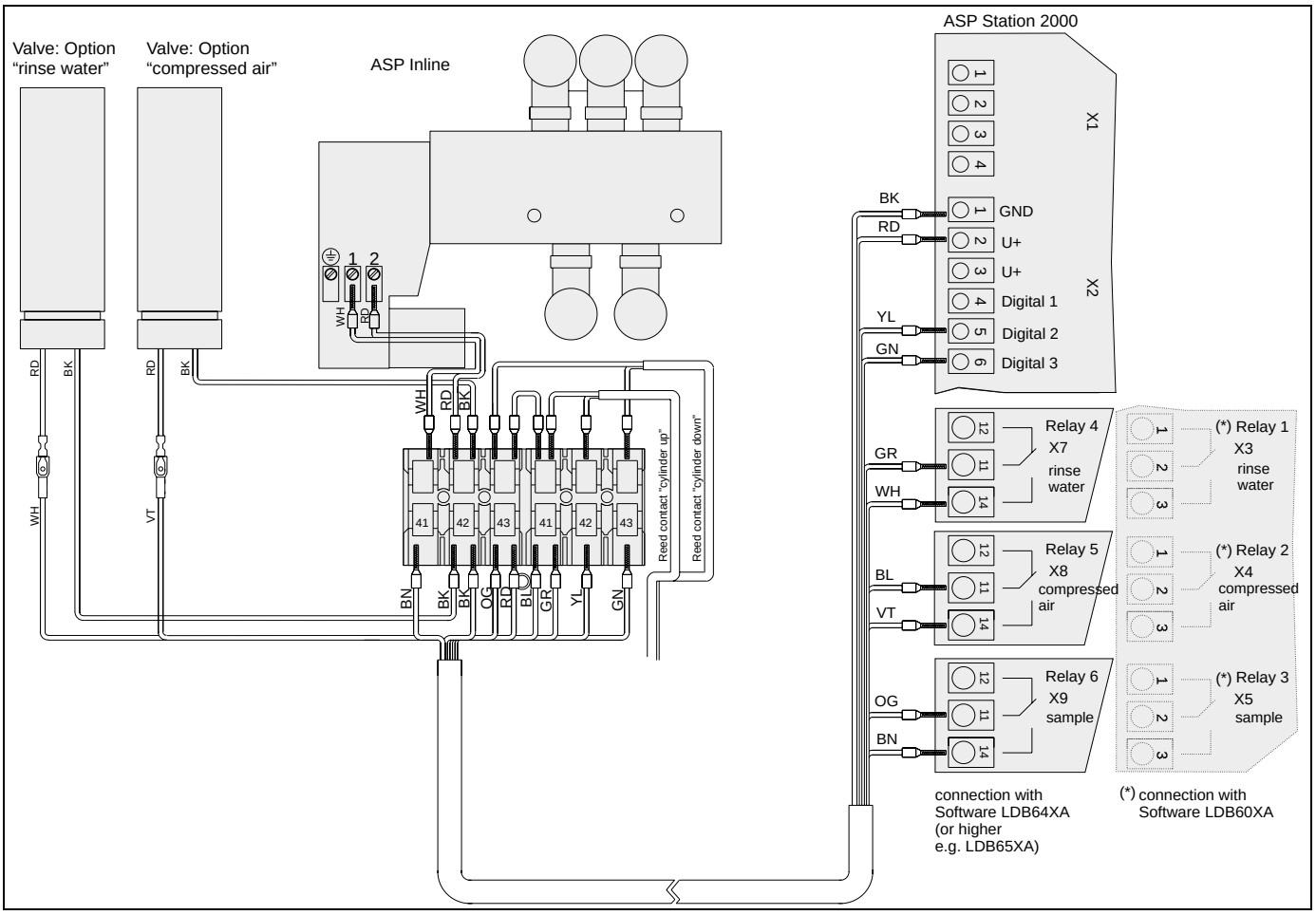


Pneumatic connection of the ASP Inline sampler assembly

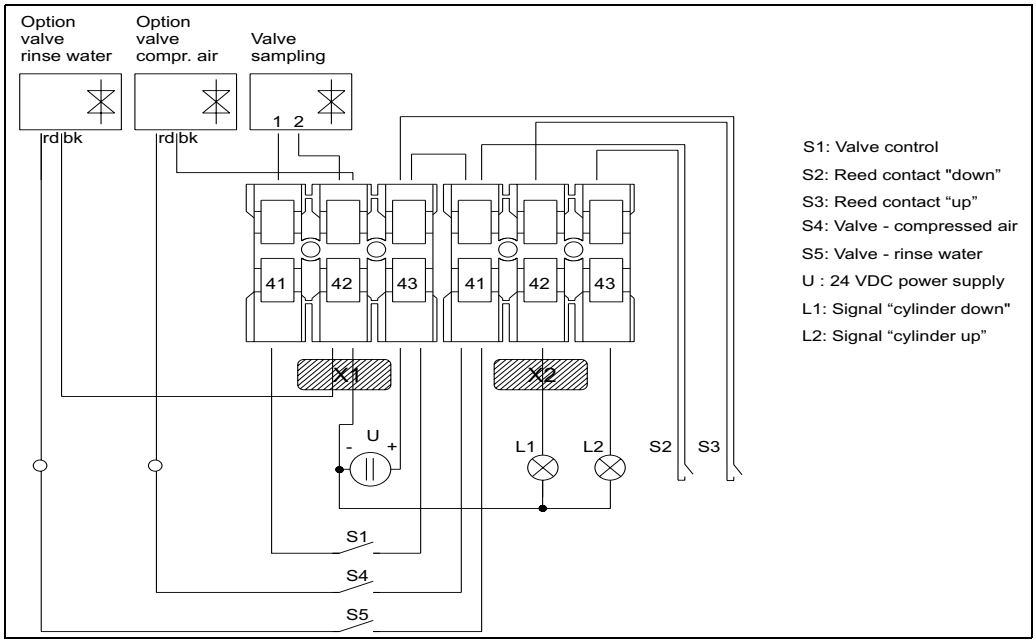
The ASP Inline sampler assembly is driven with an air pressure of 6 to 8 bar. The air must be filtered (40 µm) and free of water and oil. There is no continuous air consumption. The air pipes must have a minimum nominal diameter of 4 mm.

Note!
If the air pressure can increase to more than 8 bar (including pressure surges), a pressure-reducing valve must be connected.

Electrical connection (circuit diagram)



Electrical connection of the ASP Inline sampler assembly with options "rinse water and compressed air" to the ASP Station 2000



Electrical connection of the ASP Inline sampler assembly with options "rinse water and compressed air" to a PLC control unit

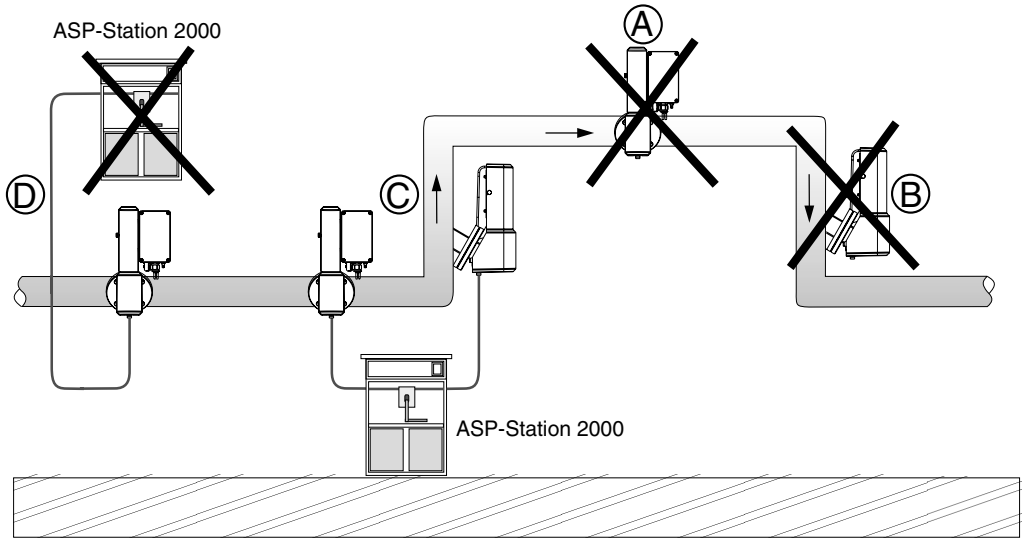
Supply voltage	24 VDC
Cable entry	1 cable gland, M16 x 1.5
Cable specifications	6 x AWG 24 UL-Style 2464 / 1061 (weather-proof, UV-resistant)
Power consumption	max. 1.8 W

Operating conditions

Installation conditions

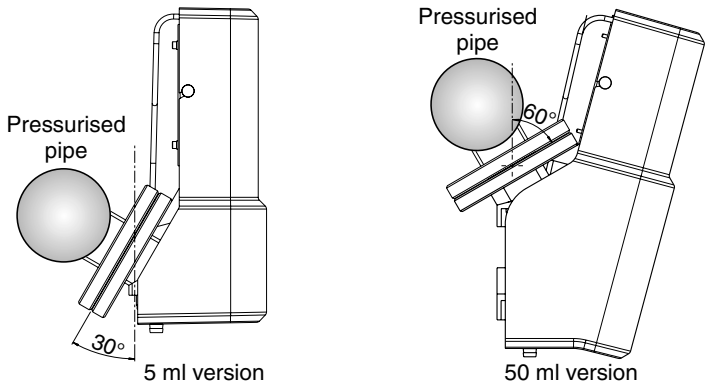
The ASP Inline sampler assembly is suitable for installation on pressurised pipelines with a nominal diameter of minimum DN50. Installation is performed via a flange connection.

Installation instructions



Item A: Do not install at the highest point of the pipe - risk of air build-up!
Item B: Do not install in a down pipe leg.
Item C: The ASP Inline sampler assembly must be located **above** *the sampling device or the sampling vessel.*
Item D: Do not install the ASP Inline sampler assembly below the sampling device or the sampling vessel (e.g. ASP Station 2000).

Orientation



Environment

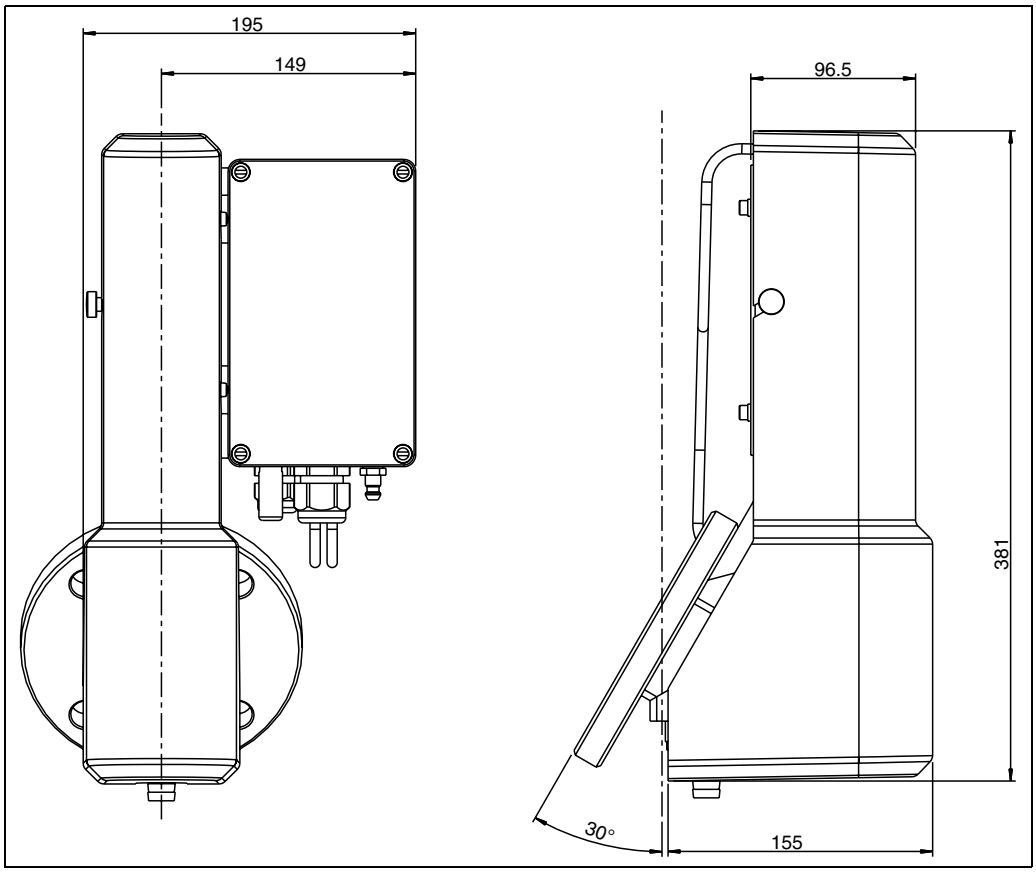
Ambient temperature range	0 to +40°C
Storage temperature	–20 to +60°C (preferably at +20°C)
Degree of protection	Terminal housing: IP65

Process

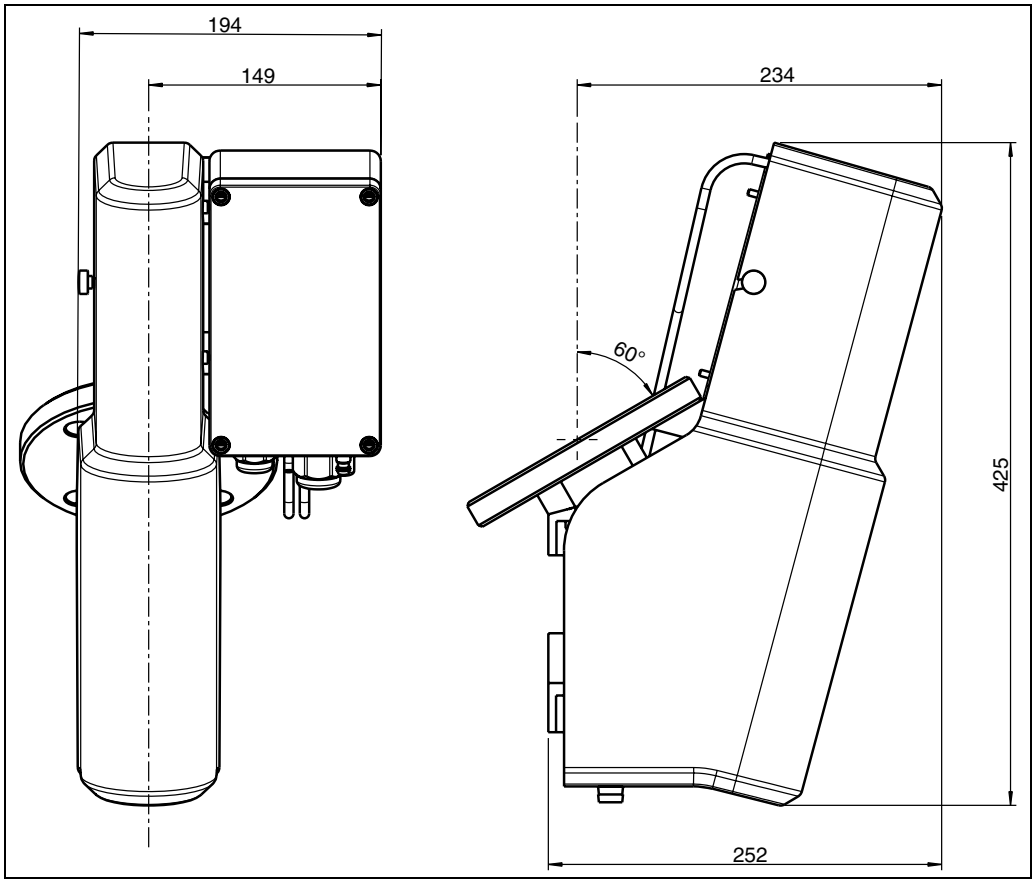
Process temperature range	0 to +60°C
Process pressure	0 to 6 bar
Pressure resistance	9 bar
State of aggregation	Liquids

Mechanical construction

Dimensions



Dimensions of the ASP Inline sampler assembly with 5 ml sample volume (specifications in mm)



Dimensions of the ASP Inline sampler assembly with 50 ml sample volume (specifications in mm)

Weight	5 ml version: approx. 7 kg 50 ml version: approx. 9.0 kg
Materials	**Parts in contact with medium** ■ Dosing ball: stainless steel 1.4404/SS316L ■ Shell seals: teflon **Parts not in contact with the medium** ■ Housing: stainless steel 1.4301/SS304H ■ Pneumatic cylinder: stainless steel 1.4301/SS304H; Aluminium anodised Material options on request.
Process connection	Flange connection DN50 PN16

Human interface

Display elements	The ASP Inline sampler assembly does not have any display elements. An external control unit (e.g. ASP Station 2000 or PLC control unit) must be used for displaying (e.g. current sampling status).
Operating elements	The ASP Inline sampler assembly does not have any operating elements. An external control unit (e.g. ASP Station 2000 or PLC control unit) must be used for activation.

Certificates and approvals

Other standards and guidelines

- EN 61010-1
  Safety requirements for electrical equipment for measurement, control and laboratory use

Ordering information

	Approval											
	A	Non-hazardous area										
		Control Unit										
		A	External, ASP Station 2000									
			Sample Distribution									
			1	w/o								
				Power supply								
				A	24 VDC							
					Dosing Phase							
					A	5 ml / shot						
					B	50 ml / shot						
						Actuation						
						1	Pneumatic, min. 6 bar					
							Dosing Ball					
							A	Stainless steel 316L				
								Shell-Seal				
								A	PTFE (Teflon)			
									Process Connection			
									1	Flange DN50		
										Cleaning Sample Chamber		
										A	w/o	
										B	Compressed air	
										C	Rinse water 2-4 bar	
										D	Rinse water 2-4 bar + compressed air	
											Mechanical Version	
											1	Basic version
RPM20-	**A**	**A**	**1**	**A**		**1**	**A**	**A**	**1**		**1**	⇐ Order code

Accessories

Various accessories can be supplied for the device and they can be ordered separately from Endress+Hauser. More detailed information on the particular order code can be obtained from your local E+H service organisation.

When ordering accessories or spare parts, please state the serial number of the machine.

Designation	Order code
Control cable for ASP Inline control unit 10x0.22 (connection to the ASP Station 2000 stationary sampler)	51005922
Hose, PVC, clear 12x2	50050376
Pneumatic coupling socket, NW5 with hose clip for LW6 hose	51005589

Documentation

- ❑Water samplers and measurement stations for liquid media (FA013C/09/en)
- ❑ASP Inline Operating Instructions (BA149R/09/a3)
- ❑ASP Station 2000 Operating Instructions (BA080R/09/a3)
- ❑ASP Station 2000 Technical Information (TI059R/09/en)

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