

Valves SV-903, FV-903

Instructions

1 Introduction

Valves SV-903 and FV-903 are 2-way 3-port valves.

- Valve SV-903 is used in stand-alone applications with ÄKTA™ design Pump P-900 series, and in ÄKTA design chromatography systems.
- Valve FV-903 is used with Fraction collector Frac-900.

Both are powered and controlled from their respective instruments.

Valve SV-903 may be used as a switching valve for BufferPrep, gradient formation or as a sample application valve for switching between sample and buffer solutions.

Valve FV-903 is used to switch fluid flow between waste and the collection tubes in FRAC-900.

Features:

- Switching time 25 ms for both activation and deactivation.
- Flow rates up to 100 ml/min.

Safety

WARNING! When using hazardous chemicals, all suitable protective measures, such as protective glasses, must be taken.

2 Installation

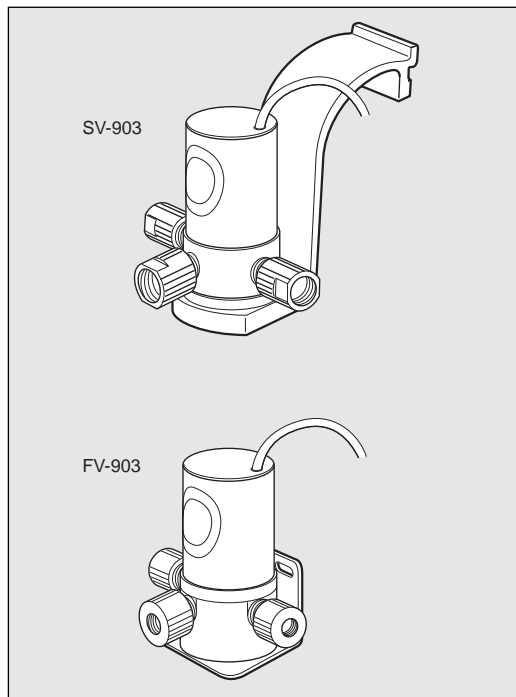
CAUTION! Before connecting Valves SV-903 or FV-903 ensure the power is switched OFF at Pump P-900, Frac-900 or for the complete system.

Unpacking

Unpack the valve and check the items against the packing list. Inspect the items for obvious damage which may have occurred during transportation.

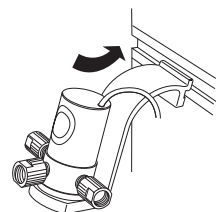
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Edition AC



Installing Valve SV-903

- 1 Mount the valve vertically between the pump heads of Pump P-900.
- 2 Connect the valve connection cable to Pump P-900. There are three alternatives:

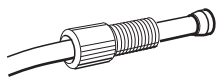


- For *BufferPrep*, connect 2 valves to the sockets **Valve A** and **Valve B**.
- For *switching between sample and buffer* solutions, connect the valve to socket **Valve 1**. (Only valid for stand-alone use with Pump P-900.)
- For *one pump gradients*, connect valve to socket **Valve A**. (Only valid for stand-alone use with Pump P-900.)



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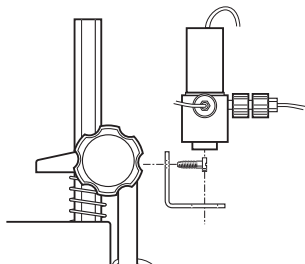
- 3 Connect the tubing. The valve has one common port marked **IN** and two switching ports **NO** and **NC**, see *Reference Information*.



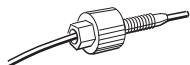
The **IN** port should be connected to the pump inlet, the **NO** and **NC** ports to the buffer bottles.

Installing Valve FV-903

- 1 Mount the bracket on Frac-900.



- 2 Connect the tubing. The **NC** port should be connected to the fraction collector arm, the **NO** port to waste, and **IN** to the outlet of an ÄKTAdesign chromatography system.



3 Operation

On/off

The valves are controlled from their respective instruments but are also indirectly controlled from UNICORN™ control system.

Storage

Overnight: The valve can be left filled with a buffer.

Weekend and Long time storage: Flush the valve with water and then fill it with 20% ethanol.

4 Maintenance

The valve requires no periodic maintenance.

Cleaning-in-place

Pump a cleaning or sanitizing agent through the valve. The standard recommendation is to pump 1 M NaOH for 30 minutes and then wash out with buffer.

WARNING! NaOH is injurious to health. Avoid spillage.

5 Trouble shooting

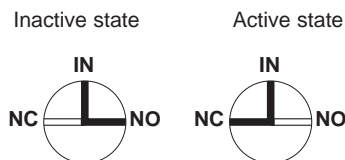
If the suggested actions do not correct the fault, call Amersham Pharmacia Biotech.

<i>Fault</i>	<i>Action</i>
The valve is not switching	<ol style="list-style-type: none"> 1 Check the connections. 2 For SV-903 check that the pump is operating and is programmed correctly.
External leakage	Check the tubing connectors. Tighten or replace if necessary.
Internal leakage	Replace the valve.
Other faults	Contact Amersham Pharmacia Biotech.

Reference information

Description

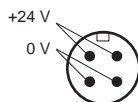
The Valves SV-903 and FV-903 have one permanently open port marked **IN** and two ports marked **NC** (normally closed) and **NO** (normally open).



The port **IN** may be used as an inlet or outlet port as required.

The ports on the SV-903 are threaded 5/16"–24 UNF 2 B for standard low pressure nipples. The ports on the FV-903 are threaded 1/16" "Fingertight" connectors.

The valve is controlled by a 24 V signal. The figure shows the pin configuration seen from the cable connector pin side.



The valve housing contains no replaceable items.

Technical specifications

Operating data

<i>Max Flow rate</i>	100 ml/min
<i>Max Pressure</i>	0.2 MPa (2 bar, 29 psi)
<i>Back pressure</i>	0.01 MPa at 100 ml/min with water
<i>pH stability range</i>	1–13, 1–14 (<1 day exposure)
<i>Viscosity</i>	Max. 5 cP
<i>Switching time</i>	<25 ms
<i>Operating life time</i>	>5 x 10 ⁶ switches
<i>Environment</i>	+4 to +40 °C 20–95% relative humidity 84–106 kPa (840–1060 mbar) atmospheric pressure

Physical data

<i>Functions</i>	Switching 2-way, 3 ports controlled from Pump P-900 or Frac-900
<i>Degree of protection</i>	IP 40
<i>Wetted materials</i>	PTFE (polytetrafluoroethylene) ECTFE (ethylenechlorotrifluoroethylene)
<i>Chemical resistance</i>	The wetted parts are resistant to organic solvents and salt buffers commonly used in chromatography of biomolecules, except 100% ethylacetate, 100% hexane and 100% tetrahydrofuran (THF)
<i>Power requirement</i>	24 V DC
<i>Power consumption</i>	1.9 W
<i>Inlet and outlet tubing</i>	
SV-903	5/16"–24 UNF 2B for tubing with 3/16" outer diameter
FV-903	UNF 10-32 2B "Fingertights" with capillary tubing 1/16" outer diameter

Internal volume

IN to port NO/NC 113 µl

Flow channel

diameter 2 mm (nominal)

Dimensions,

H x W x D 55 x 25 x 25 mm

Weight

130 grams

EMC standard This product meets the requirement of the EMC Directive 89/336/EEC through the harmonized standards EN 50081-1 (emission) and EN 50082-1 (immunity)

Note: The declaration of conformity is valid for the instrument when it is

- used in laboratory locations
- used in the same state as it was delivered from Amersham Pharmacia Biotech except for alterations described in the user manual
- connected to other CE labelled Amersham Pharmacia Biotech instruments or other products as recommended.

Accessories and spare parts

<i>Item</i>	<i>Quantity per pack</i>	<i>Code no.</i>
Valve SV-903, including mounting bracket	1	18-1114-49
Valve FV-903, including mounting bracket	1	18-1114-50
Teflon tubing, i.d. 1/8", o.d. 3/16"	3 m	18-1112-47
Tubing connector for 3/16" o.d. tubing	10	18-1112-49
Ferrule for 3/16" o.d. tubing	10	18-1112-48
Stop plug, 5/16"	5	18-1112-50
Stop plug, 1/16"	5	18-1112-52
Union Luer female/1/16" male	2	18-1112-51
Union 1/16" female/M6 male	6	18-1112-57
Union M6 female/1/16" male	8	18-1112-58
PEEK tubing, i.d. 0.75 mm, o.d. 1/16"	2 m	18-1112-53
Teflon tubing, i.d. 0.75 mm, o.d. 1/16"	2 m	18-1112-54
PEEK tubing, i.d. 1.0 mm, o.d. 1/16"	2 m	18-1115-83
Fingertight connector 1/16"	10	18-1112-55

Important user information

WARNING!

The Warning sign is used to call attention to the necessity to follow an instruction in detail to avoid personal injury. Be sure not to proceed until the instructions are clearly understood and all stated conditions are met.

CAUTION!

The Caution sign is used to call attention to instructions or conditions that shall be followed to avoid damage to the product or other equipment. Be sure not to proceed until the instructions are clearly understood and all stated conditions are met.

Note

The Note sign is used to indicate information important for trouble-free or optimal use of the product.

Should you have any comments on this instruction, we will be pleased to receive them at:

Amersham Pharmacia Biotech AB
SE-751 84 Uppsala
Sweden

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