User Guide

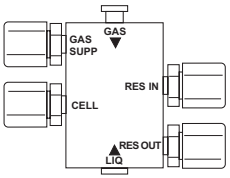
Amicon® Stirred Cell Selector Valve

Cat. No. 6003

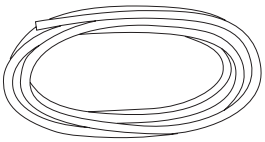
Introduction

The Amicon® Stirred Cell Selector Valve provides a quick and simple way to switch the Amicon® Stirred Cell between concentration and diafiltration modes without interrupting system operation. The unit is composed of a valve block with a sliding control that can be manually switched back and forth. Four tubing connectors lead to the gas supply, the stirred cell, and the inlet and outlet ports of a reservoir (e.g., Amicon® Stirred Cell Reservoir, cat. no. 6028).

Components Supplied



Selector valve



Tubing (¼ in. outer diameter)

Setup

Inlet/Outlet Tube Fitting Assembly

The polyethylene tubing required for assembling the selector valve with the stirred cell and reservoir is supplied with the following products:

GAS SUPP tubing is supplied with the Amicon® Stirred Cell Selector Valve.

CELL tubing is supplied with the Amicon® Stirred Cell (quick-connect fitting on one end).

NOTE: Attachment to older model stirred cells is the same, except that the cell cap connection is the tubing assembly shown on the next page, rather than quick-connect.

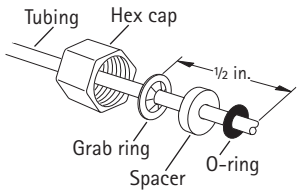
RES IN and **RES OUT** tubing is supplied with the Amicon® Stirred Cell Reservoir.

Additional tubing may be needed if using the selector valve with other devices.

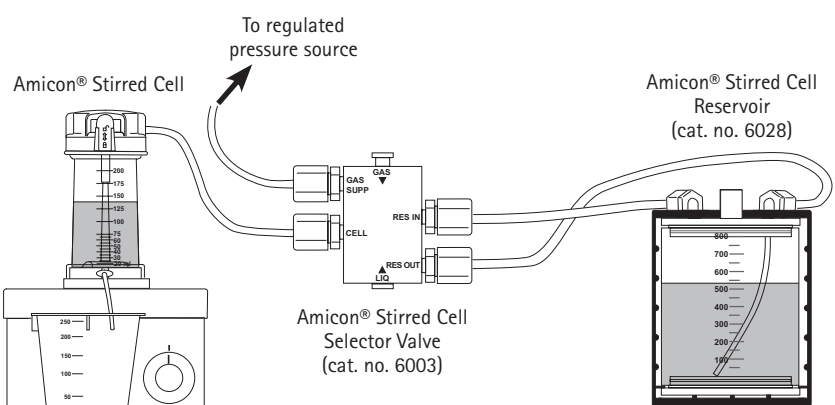
Setup, continued

Lay out the stirred cell, selector valve, reservoir, and four pieces of tubing in positions appropriate for their use together. Estimate length of tubing required for each connection and cut to length if necessary.

1. Carefully unscrew each of the four hex caps from the selector valve body and remove the O-ring. A grab ring and spacer are included inside each hex cap.
2. Slide the hex cap and grab ring (flat portion facing hex cap) onto one end of each of the four pieces of tubing leaving no more than 1.3 cm (½ in.) of tubing beyond grab ring. Add a spacer (countersink toward grab ring) and O-ring onto the end of each piece of tubing.



3. Attach each tubing assembly to the appropriate selector valve port and hand tighten the hex caps.
4. Add appropriate tube fittings to the free ends of **RES IN**, **RES OUT**, and **GAS SUPP** tubing pieces. The **CELL** tubing already has a quick-connect fitting on it.
5. Refer to the diagram below and connect the ends of the tubing as follows:
   - Connect **GAS SUPP** to external pressure source.
   - Connect **CELL** to quick-connect inlet fitting on stirred cell.
   - Connect **RES IN** to inlet fitting (labeled "G" on Amicon® Stirred Cell Reservoir cap).
   - Connect **RES OUT** to outlet fitting (labeled "L" on Amicon® Stirred Cell Reservoir cap).
6. Assemble the Amicon® Stirred Cell and reservoir according to the corresponding user guides, then fill with desired solutions.



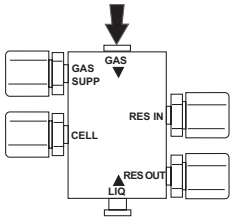
Operation

WARNING: Do not exceed Amicon® Stirred Cell pressure limit of 5.2 bar (75 psi).

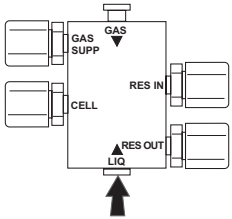
NOTE: Nitrogen gas is recommended for pressurizing the Amicon® Stirred Cell and reservoir.

To concentrate:

1. Following direction of arrow, push **GAS** spool valve plug in until spool plug seats fully.
2. Initiate stirring and turn the pressure on, as indicated in the Amicon® Stirred Cell Reservoir user guide. Both the reservoir and stirred cell are pressurized, but the cell is "seeing" only gas and there is no flow of liquid from the reservoir to the cell.



CONCENTRATION



DIAFILTRATION

To diafilter:

NOTE: During diafiltration, the pressure should not exceed 3.8 bar (55 psi), in order to maintain equilibrium between the stirred cell and the reservoir. If the liquid level increases slightly, concentrate briefly.

WARNING: To prevent fluid from entering the stirred cell pressure relief valve during diafiltration, do not exceed the maximum working volume (e.g., 50 mL for the 50 mL stirred cell).

1. Push **GAS** spool valve plug in until spool plug seats fully. Initiate stirring and turn the pressure on. If necessary, lower the pressure to 3.8 bar (55 psi).
2. Wait 5–10 seconds to equalize the pressure in both the stirred cell and the reservoir.
3. Then, following the direction of the arrow, push the **LIQ** spool valve plug in until spool plug seats fully. This allows pressurized liquid to flow out of the reservoir and into the stirred cell.

   NOTE: The liquid level in the stirred cell should be maintained at a constant volume for diafiltration.

To switch from one mode to the other:

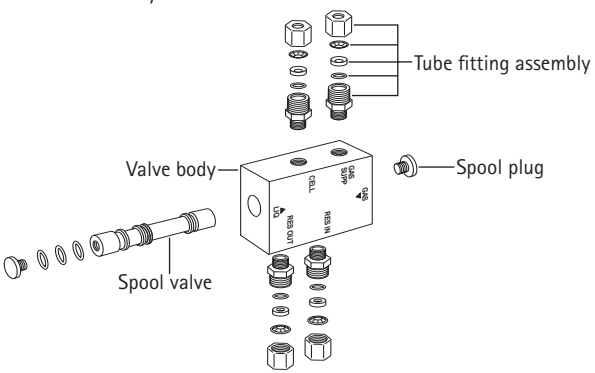
1. Push **GAS** spool valve plug in for concentration or push **LIQ** spool valve plug in for diafiltration. When switching modes, there is no need to shut off the gas pressure or disconnect the system components.
2. To decrease the stirred cell's liquid level, shift to **GAS** until desired level is obtained, then shift back to **LIQ**.

Shutdown

1. Proceed with concentration or diafiltration until desired sample volume or buffer exchange has been achieved.
2. Turn off pressure at source, then turn off magnetic stirrer.
3. Vent pressure from system **using the reservoir pressure relief valve**. Venting from the stirred cell pressure relief valve may cause fluid to be expelled from the cap.
4. Disassemble stirred cell and reservoir according to corresponding user guides.

Cleaning and Maintenance

1. After each use, flush both selector valve and tubing with mild laboratory detergent and rinse with deionized water.
2. For more thorough cleaning, unscrew one of the spool plugs and push the spool valve out of the selector valve body.



3. Clean spool valve and inside of the valve body as necessary. The O-rings on the spool valve are interchangeable and may be removed for cleaning, if desired.

   NOTE: To prevent excessive wear to O-rings and spool valve, avoid frequent disassembly.
4. To reassemble, replace O-rings on valve spool. Lightly lubricate O-rings with petroleum jelly and insert spool carefully into valve body, making sure middle O-ring is offset toward **LIQ** end of valve body (see diagram above). Replace spool plug and seat it firmly.
5. If tube fitting assemblies are removed for any reason, rewrap the threads with polytetrafluoroethylene tape before replacing them in valve body. Use moderate force when replacing fittings.

Sterilization/Sanitization

The selector valve is **NOT** autoclavable. To sterilize, use standard sterilizing gas mixtures. To sanitize, use 70% ethanol or isopropanol. To disinfect, use 5% formalin.

Chemical Resistance

Do not use the selector valve with strong acids or bases (pH < 2 or > 10), ketones, acetaldehyde, acetic acid, aromatic and chlorinated hydrocarbons, polar aromatics, oxidizing agents, aniline, Cellosolve® solvent, ethers, or esters.

Specifications

Maximum operating pressure		
Amicon® Stirred Cell Selector Valve		5.2 bar (75 psi)
Amicon® Stirred Cell		5.2 bar (75 psi)
Amicon® Stirred Cell Reservoir		5.2 bar (75 psi)
Diafiltration using the Amicon® Stirred Cell, Selector Valve, and Reservoir		3.8 bar (55 psi)
Working temperature range		4–40 °C (39–104 °F)
Weight (without tubing)		80 g (2.8 oz)
Dimensions	Selector valve	7.6 × 8.9 × 1.9 cm (3 × 3.5 × 0.75 in.)
	Tubing	1/4 in. (6.4 mm) OD × 2.4 m (8 ft)
Inlet and outlet port connections		1/4 in. (6.4 mm) OD × 1/8 in. (3.2 mm) NPT tube fittings
Materials of construction		
Valve body, spool valve		Acetal
Spool valve O-rings		Buna-N
Tube fittings		Nylon, stainless steel, buna-N
Tubing		Polyethylene

Statement Regarding Compliance with the Pressure Equipment Directive 97/23/EC

EMD Millipore Corporation certifies that this product complies with the European Pressure Equipment Directive, 97/23/EC of 29 May 1997. This product is classified under Article 3 § 3 of the Pressure Equipment Directive. It has been designed and manufactured in accordance with sound engineering practices to ensure safe use. The product is accompanied by user instructions and bears markings to permit identification of EMD Millipore Corporation as the manufacturer or authorized representative of this product within the European Community. In compliance with Article 3 § 3 of the Pressure Equipment Directive, this product does not bear the CE mark.

Ordering Information

This section lists catalogue numbers for the Amicon® Stirred Cell Selector Valve and related products. See Technical Assistance section for contact information. You can purchase these products on-line at www.millipore.com/products.

Description	Cat. No.	Qty
Amicon® Stirred Cell Selector Valve	6003	1
Amicon® Stirred Cell, 50 mL	UFSC05001	1
Amicon® Stirred Cell, 200 mL	UFSC20001	1
Amicon® Stirred Cell, 400 mL	USCF40001	1
Amicon® Stirred Cell Manifold For operation of multiple cells or reservoirs; individually valved. Includes manifold, tube fittings, tubing, mounting hardware.	6015	1
Amicon® Stirred Cell Reservoir, 800 mL Provides 800 mL extra fluid volume; can be used for diafiltration. Includes reservoir, tube fittings, tubing.	6028	1
Dispensing Pressure Vessel, 1 gal	XX6700P01	1
Dispensing Pressure Vessel Fitting Kit	XX67000PK	1

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Standard Warranty

The applicable warranty for the products listed in this publication may be found at www.millipore.com/terms ("Conditions of Sale").

99104, Rev. 10/15