Instructions 19-1992-51 AE

# Gradient Kit P-50

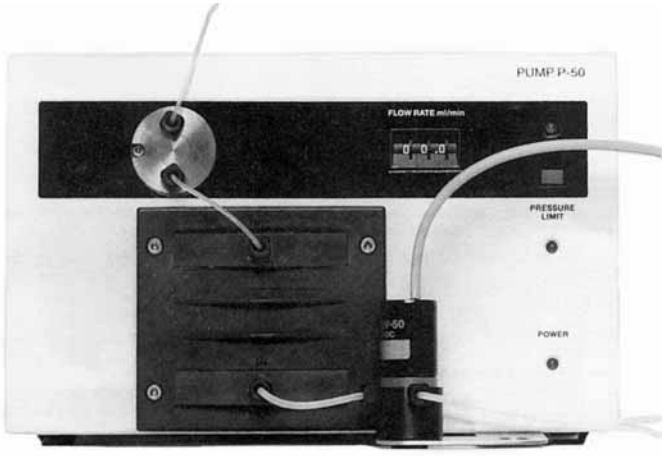



**Fig 1.** Gradient Kit P-50 mounted on the right-hand side of HiLoad Pump P-50.

The Gradient Kit P-50 is designed for use with HiLoad™ Pump P-50 for gradient formation at high flow rates. The kit includes the Solenoid Valve PSV-50, bracket for mounting the valve on Pump P-50, inlet tubing and tubing for connecting the valve to the pump. The valve operates as a switch valve controlled from Gradient Programmer GP-250 Plus or Liquid Chromatography Controller LCC-501 Plus. A second valve can be mounted to allow programmed control of sample application. For optimal results with gradient elution, a separate mixer (size depending on the flow rate used) should be included in the system.

These Instructions refer to the mounting, connection and use of the Solenoid Valve PSV-50. Refer to the respective User Manuals for further details of Pump P-50, Gradient Programmers, Liquid Chromatography Controllers and Mixers.

## Unpacking

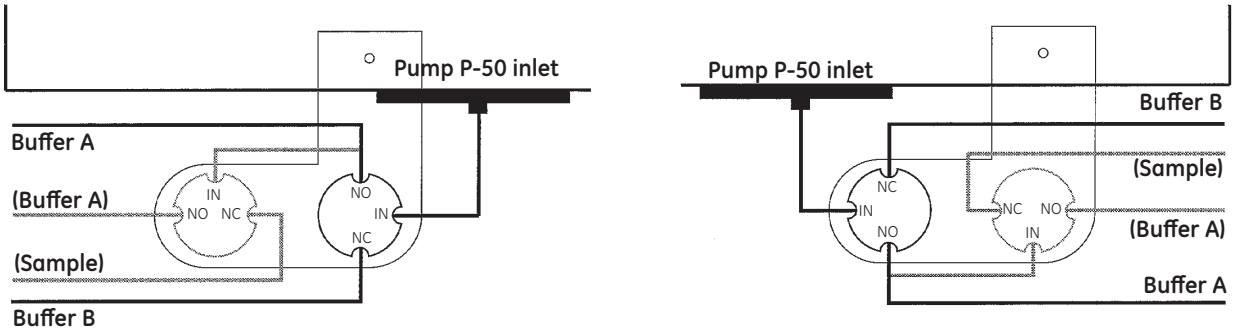
Check the contents of the transport package against the enclosed Packing List. Notify your Pharmacia Biotech representative immediately if any parts are missing or damaged.

## Installation

The mounting bracket for holding Solenoid Valve PSV-50 is fitted on the front of Pump P-50, on either the right or left of the pump head. Figure 1 shows the valve mounted on the right.

### Fitting the mounting bracket

Push the black rubber holder into place in the mounting bracket. If you are only going to use one valve, fit the holder on the side of the bracket which will be nearest the




*Left side mounting* *Right side mounting*

**Fig 2.** Tubing connections for valve(s). Note the different orientation of the valves according to whether they are mounted on the right or left of the pump head. Placing and connections for the optional sample application valve are shaded.

Note that the valve ports marked IN are used in this arrangement as outlet ports from the sample application valve to the switch valve and from the switch valve to the pump.

pump head (see Fig 2). If you intend to use a second valve for sample application, fit both holders into the mounting bracket.

The orientation of the holders in the mounting bracket is determined by whether you intend to fit the valve on the right or left of the pump head. Make sure the notches in the holders can accommodate the inlet and outlet tubing arrangement as shown in Figure 2.

Remove the screw from underneath the front edge of the pump on the side where you intend to fit the mounting bracket. Fit the mounting bracket using the longer screw provided with the Gradient Kit.

### Tubing connections

Fit inlet and outlet tubing to the valve(s) before placing the valve(s) in the holders. Some of the tubing connections are awkward to get at when the valves are in place in the holders.

Fit inlet and outlet tubing to the valve(s) according to Figure 2. Tighten all tubing connections by hand or gently with a key.

Use the short (88 mm) tubing provided with the Gradient Kit to connect the switch valve to the pump. A second short tubing is required for connecting between the two valves when a sample application valve is used.

Always use I.D. 1.9 mm tubing on the inlet side of the pumphead and I.D. 1.2 mm tubing on the outlet side. Keep all tubing lengths as short as possible to minimize gradient deterioration.

Place the valve(s) in the holder(s) and connect the pump tubing to the inlet port on the pump head.

### Electrical connections

Connect the REMOTE contact on Pump P-50 to the PUMP A contact on GP-250 Plus or LCC-501 Plus using the Communication Cable (Code No. 19-6005-02). Make sure the PUMP P contact on the controller is disconnected.

Fit the 3-pole connector to the valve cable, connecting the cable leads to the outermost contacts on the connector. Connect the switch valve to the SWITCH VALVE contact on the controller. Connect the sample application valve, if used, to one of the SOLENOID VALVE contacts on the controller using a 2-pole connector.

The default wash program on the controller causes the switch valve to switch between equal volumes of buffer A and B with a cycle time of 3 s for about 80 s at 30 ml/min.

## Gradient Mixers

For gradient work, a Mixer should be fitted between the outlet from the pump and the chromatography column. Choose the Mixer size according to the flow rate in the system, and set the mixing volume calibration value in the controller according to the Mixer size.

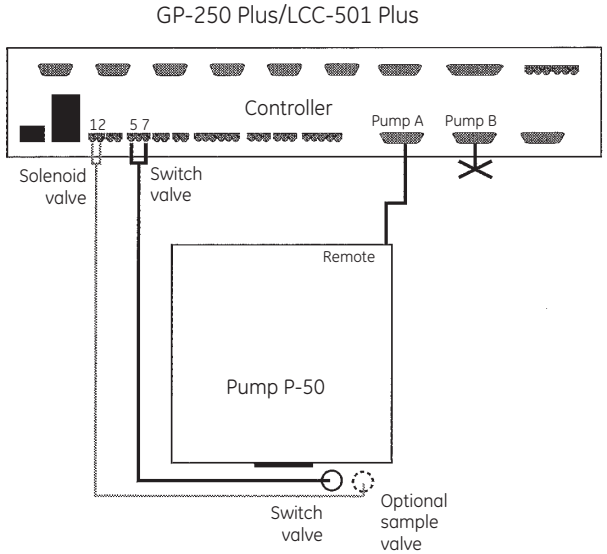



**Fig 3.** Electrical connections for Pump P-50 and switch valve PSV-50 used in gradient work. Connections for the optional sample application valve are shaded.

**Table 1.** Recommended Mixer sizes.

| Flow rate | Mixer | Mixing volume |
|---|---|---|
| 0–5 ml/min | 0.6 ml | 60 µl |
| 3–50 ml/min | 6.0 ml | 600 µl |

## Ordering information

| Designation | Code No. |
|---|---|
| Gradient Kit P-50 | 19-1992-50 |
| **Replacement parts** | |
| Solenoid Valve PSV-50 | 19-1994-01 |
| Holder PSV-50 | 19-1992-55 |
| Connector, 3-pole female (for switch valve) | 18-0012-52 |
| Connector, 2-pole female (for sample valve) | 19-8629-01 |
| Remote communication cable 1.5 m (controller–pump) | 19-6005-02 |
| Inlet tubing I.D. 1.9 mm, 1.5 m | 19-1992-08 |
| **Accessories** | |
| Mixer 0.6 ml, 24 V | 19-6700-01 |
| Mixer 6 ml, 110 V AC | 18-3500-01 |
| Mixer 6 ml, 220 V AC | 18-3501-01 |

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