



# Filter Kit HR 10, Filter Kit HR 16

## Instructions for Use

These instructions describe how to change filters and O-rings on HR 10 and HR 16 columns.

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# 1 Filter kit contents

These filter kits (Code Nos. 18357501/18358501 respectively) contain 10 filters and 4 O-rings.

# 2 When to change the filter

Change the filter on the top of your column when you observe an increased backpressure, a space which has become visible between adapter and filter, a loss of resolution and always before you perform a thorough column cleaning.

Change the filter only at the top since this normally restores performance and since changing the bottom filter may lead to loss of efficiency.

# 3 How to change the filter

To change the filter you need a Filter tool, Code No. 18359001, consisting of a hook and a plunger.

Step	Action
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|---|---|
| 1 | Start the pump and pump buffer solution, e.g., the buffer previously used, through the column at a flow rate of 1 to 1.5 to ml/min. |
|---|---|

**Note:**

*Do not exceed recommended maximum backpressure.*

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| 2 | Gradually rotate the red adjusting ring counter-clockwise. Unscrew the red ring completely, and stop the pump. |
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Step	Action
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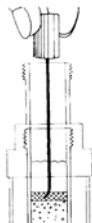
3	Pull the adapter out by the red ring. Disconnect the column top inlet tubing from the valve.
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4	Check that some buffer remains over the chromatography medium bed.
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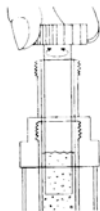
5	Carefully and slowly bring up the loose filter by using the hook (part of the Filter tool). Do not press or puncture the medium bed.
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**Note:**

*Only a very small amount of medium should be in suspension after removing the filter.*



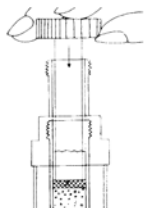
6	Check that the surface of the medium bed is horizontal and even. If not, use the plunger (part of the Filter tool) and carefully stir up 2–3 mm of medium by rotating it on the very top of the medium bed.
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## Step Action

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- 7** Wet a new filter in 20% ethanol. Put the filter into the column, avoiding air bubbles under it. Push it gently down to the medium surface with the plunger. For HR 16 columns, use the wider end of the plunger.



**Note:**

*As the filter is inserted, any medium which has been stirred up will be packed onto the top of the bed.*

- 8** Make sure the filter is horizontal, and remove the plunger.
- 9** Remove the liquid and traces of medium above the filter with a pasteur-pipette. Rinse the walls and the top of the filter with small aliquots of buffer until all the medium particles above the filter have been removed.
- 10** Fill the volume above the filter with buffer.
- 11** Check the O-ring in the adapter. Change it if it is damaged or asymmetrical. Do not use a sharp tool to remove the O-ring, as this could damage the adapter and cause leakage.
- 12** Insert the adapter, aligning it so that it engages the slots in the end piece.

Step	Action
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| 13 | Adjust the adapter to the medium bed by clockwise rotation of the red adjusting ring until there is no space visible between the adapter and the filter. Check that no large air bubbles have been trapped between the medium and the adapter. If a large air bubble has become trapped, carefully remove and replace the adapter. |
| 14 | Connect the column inlet tubing to the valve.  |
| 15 | Start the pump and pump buffer at a flow rate of 1 to 1.5 to ml/min for 5 to 10 to minutes to pack the top of the medium bed.  |
| 16 | Stop the pump and disconnect the column inlet from the valve.  |
| 17 | Adjust the adapter to the filter again by clockwise rotation of the red adjusting ring. When there is no space between the adapter and the filter, rotate the red ring an additional half turn for final positioning of the adapter.   |
| 18 | Reconnect the column inlet to the valve.   |
| 19 | Test the column performance with a suitable sample.  |

## 4 Troubleshooting

Try the following if column performance is not restored:

- Wash the column according to the procedures described in the "Instructions" supplied with each column.
- Repeat the procedure described with a new filter.
- If there is still no improvement, re-suspend 2–3 mm of the top of the medium bed using the plunger as described above (Step 6). Remove the suspension and replace the filter and adapter.
- As the final attempt to restore performance, check carefully that the adapter is properly adjusted to the medium bed, and reverse the flow direction in the column. Use a flow rate of 1 to 1.5 to ml/min for 10 to 30 to minutes.

For further information contact your local Cytiva representative.



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52177700 AN V:5 07/2020