Columns C 10, C 16, C 26

Instructions

The C-series columns are designed for Standard Chromatography. The eluent inlet pieces incorporate a "reverse funnel" design that distributes eluent evenly over the cross-sectional area of the gel bed surface. This causes minimal disturbance of the gel bed and results in improved flow properties. The C-series columns are available in the following dimensions.

Column length	i.d. (mm)		
	10	16	26
10 cm	C 10/10	-	-
20 cm	C 10/20	C 16/20	-
40 cm	C 10/40	C 16/40	C 26/40
70 cm	-	C 16/70	C 26/70
100 cm	-	C 16/100	C 26/100

The following accessories are available for all C-series columns.

Column packing reservoirs RC 10, RC 16, RC 26. Unique design allows faster and more uniform packing by gravity or pump.

Adapters AC 10, C 16, AC 26. Allow variations in gel bed height. The sample can be applied without disturbing the gel bed.

Thermostat jackets JC 10, JC 16, JC 26. For accurate temperature control of the column (not available for C 10/10).

Unpacking

Please check the delivery against this list: 1 column, 2 m polyethylene tubing, 1 support screen, 1 net ring and 1 flow stopper pin.

Description

The column consists of three main parts; the glass tube, the top end piece, and the bottom end piece. Please note the difference between the inlet and the outlet sections of the end pieces.

Under normal operating conditions the only materials in contact with the effluent are polypropylene, polyamide, fluro rubber and polyethylene. This ensures good chemical resistance. The materials of the different parts are given in the spare parts list.

Resistance

The columns can be used in aqueous solutions and nearly all organic solvents commonly used in chromatography with the following exceptions: chlorinated hydrocarbons, acetone and other ketones, aliphatic esters and phenol. Solutions containing more than 10% sodium hydroxide, 10% hydrocloric acid or 5% acetic acid should not be used since these may damage the polyamide net. The columns may be used from 0 to 60°C and at pressures up to 0.1 MPa (1 Bar or 14 psi).

Cleaning

Suitable cleaning agents are soapy water or laboratory detergents. Enzyme detergents are recommended for removing proteinaceous contamination. With the polyethylene tubing and the net ring (10) removed, the column may be autoclaved for 20 minutes at 120°C.

Instructions

Numbers refer to the exploded diagram (see *Fig. 3, on page 4*).

Connection of tubing to nipples (see the figure below)

Step	Action
1	Cut the tubing cleanly at a 45 angle.
2	Remove the connector nut (1) and slip it over the tubing.
3	Remove the sealing plug (2) (with the help of the metal stopper).
4	Push the tubing through the sealing plug until it projects about 1 cm.
5	Seat the tubing in the nipple. Slide the cone along the tubing, into the nipple.
6	Finger tighten the connector nut.

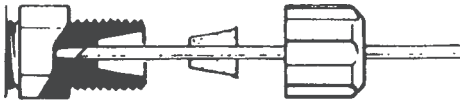

Fig 1.

Dismantling the column

Step	Action
1	Remove the top end piece (5) by holding it still and unscrewing the end piece ring (9).
2	Slide off the friction ring (7).
3	Slide off the guide ring (8) and the end piece ring.
4	Repeat the procedure for the other end of the column.

Reassembling the column

Step	Action
1	Make sure that the friction ring (7) and glass tube (13) are clean. It is recommended to clean the parts with a laboratory detergent. Lubricate the friction ring with 20% ethanol before use.
2	Slide the end piece ring (9) and the guide ring (8) on to the glas tube as indicated in the exploded diagram.
3	Slide the friction ring on the column with the conical side facing the centre of the tube.
4	Check the position of the friction ring by pressing the bottom end piece (12) with its sealing ring (6) to the end of the glass tube. There should be a gap of approx. 1 mm between the end piece and friction ring.
5	Assemble the end piece by keeping the bottom end piece still and turning the end piece ring. Finger tighten firmly.
6	Repeat the procedure for the top end piece. ***Note:*** *If you use a column at higher pressures, e.g. packing with Q and S Sepharose™ Fast Flow or Sephacryl™ HR, equip the column with a thermostat jacket (JC10, JC16 or JC26) to secure the ends.*

Replacing the net ring and the support screen

Step	Action
1	Remove the net ring (19) by inserting a sharp tool between the ring and the end piece.
2	Lay a support screen (11) on the end piece.
3	Snap on a new net ring.

Packing the column

Instructions for packing the column with Sephadex™, Sepharose and Sephacryl High Resolution are given in the Cytiva handbook *"Gel Filtration – Principles and Methods"*. Instructions for packing Sephadex Ion Exchanger are given in the Cytiva handbook *"Ion Exchange Chromatography – Principles and Methods"*. Column packing advice is also available in the Column Packing Video.

Faster and improved packing can be obtained by using the column packing reservoir mentioned above.

Sample application

Three standard methods for sample application are described in the booklet *"Gel filtration – theory and practice"*.

The C-series columns are specially designed for sample application under the eluent.

Step	Action
1	The "reversed funnel" design of the inlet piece gives minimum disturbance to the sample when elution of the column is started.
2	The standard tubing can be slipped through the hole in the top end piece when the tubing connector is dismantled. The sample can be applied without dismantling the top end piece.

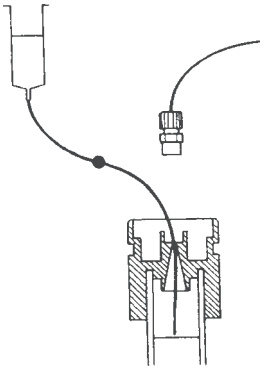

Fig 2.

Note:
The method demands a sample more dense than the buffer. The best way to apply the sample is either with gravitational feed from an open syringe (see the figure above) or by sucking the sample into a piece of tubing using a peristaltic pump, then reversing the flow and very slowly applying the sample.

Ordering information

Column [1]	Code No.	Thermostat Jacket	Code No.	Adapter[2]	Code No.	Packing Reservoir	Code No.
C 10/10	19-5001-01	Not available	Not available				
C 10/20	19-5002-01	JC 10/20	19-5004-01	AC 10	19-5006-01	RC 10	19-5007-01
C 10/40	19-5003-01	JC 10/40	19-5005-01				
C 16/20	19-5101-01	JC 16/20	19-5105-01				
C 16/40	19-5102-01	JC 16/40	19-5106-01				
C 16/70	19-5103-01	JC 16/70	19-5107-01	AC 16	19-5109-01	RC 16	19-5110-01
C 16/100	19-5104-01	JC 16/100	19-5108-01				
C 26/40	19-5310-01	JC 26/40	19-5204-01				
C 26/70	19-5202-01	JC 26/70	19-5205-01	AC 26	19-5207-01	RC 26	19-5208-01
C 26/100	19-5203-01	JC 26/100	19-5206-01				

[1] All columns are delivered with 2 m polyethylene tubing (i.d. 1.0 mm), 1 bed support screen and 1 snap-on bed support net.

[2] All adaptors are delivered with 1 m polyethylene tubing (i.d. 1.0 mm), 1 bed support screen, 1 snap-on bed support net and 1 xpander O-ring.

Spare parts

The exploded diagram overpage shows the position of the different parts of the columns. For replacement please order according to the list below using the appropriate code number. Please note that the code numbers for all three column widths are included in the same table.

Code No. Item No.	Designation	C 10	C 16	C 26	Material	No. Per pack
1	Connector nut	19-0038-01	19-0038-01	19-0038-01	A	1
2	Sealing plug	19-0039-01	19-0039-01	19-0039-01	B	5
3	Tubing nipple	-	19-0035-01	19-0035-01	C[1]	2
4	O-ring	-	19-0680-01	19-0680-01	B	10
5	Top end piece	19-5023-01	19-5123-01	19-5223-01	C	1
6	Sealing ring	19-5027-01	19-5127-01	19-5235-01	D	5
7	Friction ring	19-5020-01	19-5120-01	19-5220-01	D	5
8	Guide ring	19-5021-01	19-5121-01	19-5221-01	A	5
9	End piece ring	19-5025-01	19-5125-01	19-5225-01	C	1
10	Net ring 10 µm	19-5008-01	18-8761-01	18-7060-01	E	5
11	Support screen	19-1767-01	19-0651-01	19-0656-01	F[2]	5
12	Bottom end piece	19-5024-01	19-5124-01	19-5224-01	C	1
13	Glass tube for column length					
	10 cm	19-5035-01	-	-	G	1
	20 cm	19-5036-01	19-5137-01	-	G	1
	40 cm	19-5037-01	19-5138-01	19-5236-01	G	1
	70 cm	-	19-5139-01	19-5237-01	G	1
	100 cm	-	19-5140-01	19-5238-01	G	1
14	Tubing i.d. 1 mm	19-0040-01	19-0040-01	19-0040-01	H	10 m
15	Stopper	19-0752-01	19-0752-01	19-0752-01	I	10 m
16	Tubing i.d. 0.5 mm	19-5050-01	-	-	H	2
17	Net ring 80 µm	19-5009-01	-	-	E	4

[1] Material of main component

[2] The support screens for the C 10 columns are made from PTFE

Material

A	Superpolyoxymethylene
B	Fluoro rubber
C	Polypropylene (glass fibre reinforced)
D	Silicone rubber
E	Polyamide and polypropylene
F	Polypropylene
G	Glass
H	Polyethylene
I	Stainless steel

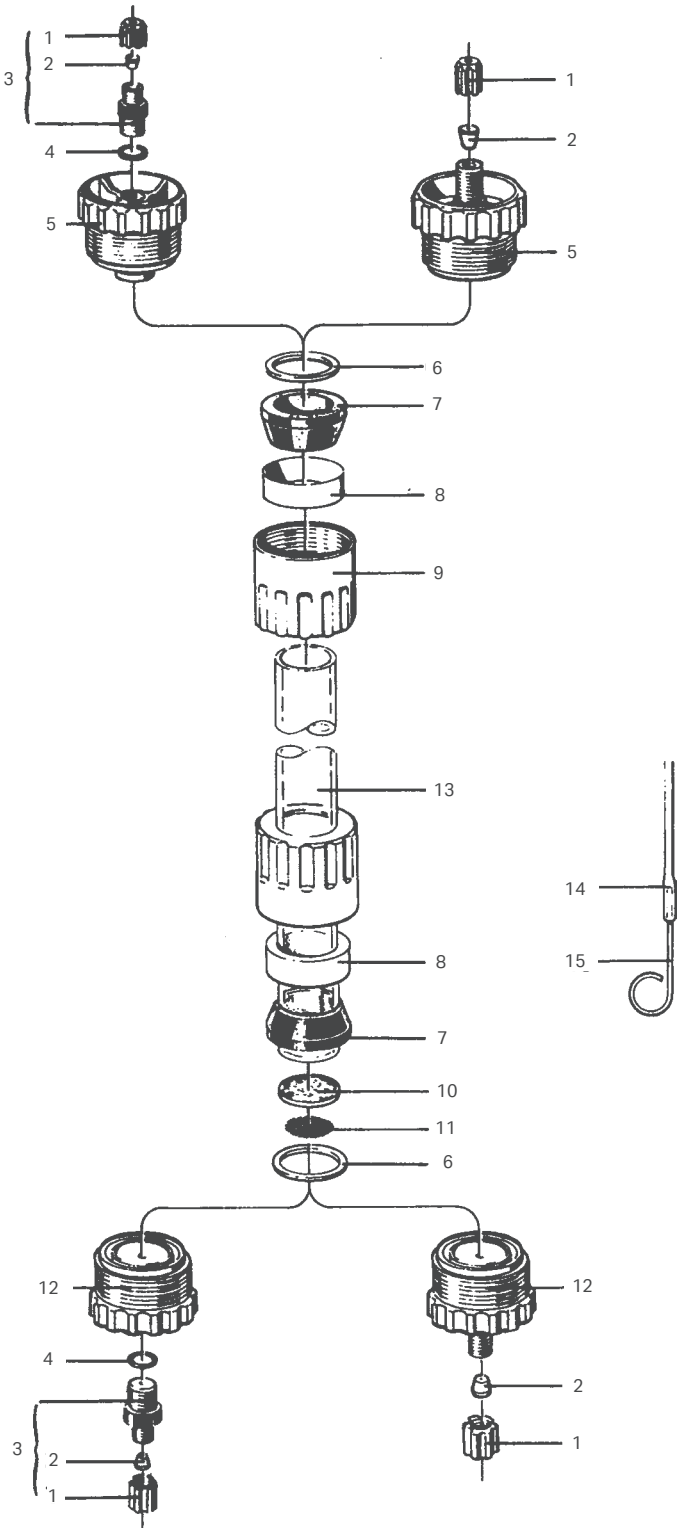

Fig 3.

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59526100 AN V:4 05/2021