

Instructions for using Omnifit EZ Chromatography columns



Precision glass chromatography columns designed for low to medium pressure liquid chromatography. Please read all instructions before use.

Inside the box

Omnifit EZ Chromatography columns are supplied with one glass chromatographic tube, two endpieces, a frit kit and fittings kit. Before use please check package contents to ensure complete supply and components are undamaged.

Description of parts

Chromatographic tube 14

The high-precision bore, borosilicate glass tube is available in the lengths and inner diameters described in the Table. PEEK tube threads 10 at each end ensure robust, secure connection of endpieces.

Column endpieces, fixed 15 and adjustable 13

The plungers 2 or 11 fit into the chromatographic tube and are secured by screwing the retaining cap 4 onto the PEEK tube threads 10 that are integral to the chromatographic tube.

The endpiece seals against the chromatographic tube via an inert PTFE seal 11a, backed up by a FKM/FPM 'O'-ring 5.

A 25µm PE frit 6 is supplied pre-fitted into the plunger. This frit supports the media bed.

For 6.6 to 50.5mm bore columns the endpiece also incorporates a connection cap 1 into which a standard 1/4"-28 UNF male tube end fitting can be connected. The 5mm bore column is supplied with 10-32 ports to accept typical HPLC fittings.

Resistance

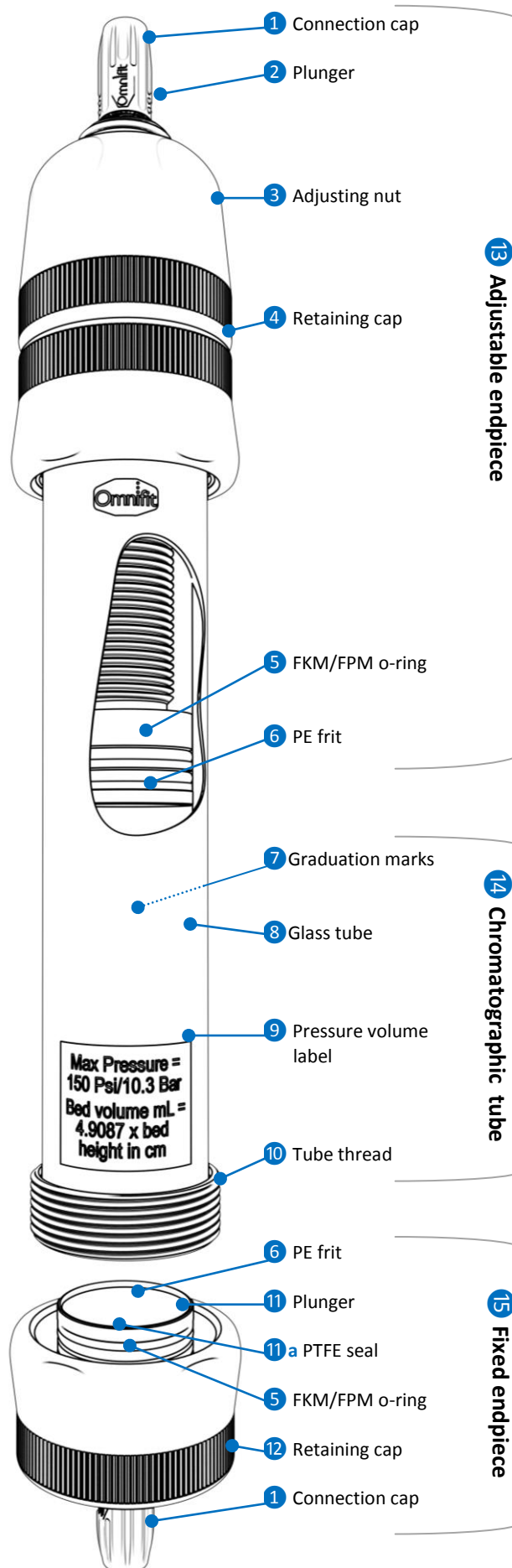
Care should be taken not to expose components to materials that may cause damage or even failure. Components normally in fluid contact (wetted) are the plungers, o-rings, glass tube and frits. The remaining components should not be wetted other than with suitable cleaning solutions. The columns may be used between temperatures of 10° C and 40°C and at pressures as shown. Further resistance information can be found at the end of these instructions.

Bore size mm	Rating upto psi
6.6	900
10	600
15	300
25	150
35	150
50	150

Cleaning

Every effort is made to maintain the cleanliness of the column components during manufacture but it cannot be guaranteed. It is suggested that the glass column be washed before use to remove any possible contaminants.

Suitable cleaning agents are soapy water or laboratory detergents. The chromatographic tube, plungers and o-rings can be sterilized in an autoclave.



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Instructions

Dismantling the column

1. Remove the fixed endpiece by first unscrewing the retaining cap.
2. When the threads in the cap and the tube threads are disengaged, the endpiece may easily be removed from the glass column.
3. To remove the adjustable endpiece, turn the adjusting nut ③ until the plunger is at the furthest out position. Unscrew the retaining cap.
4. When the threads in the cap and the tube threads are disengaged, the endpiece may easily be removed from the glass column.



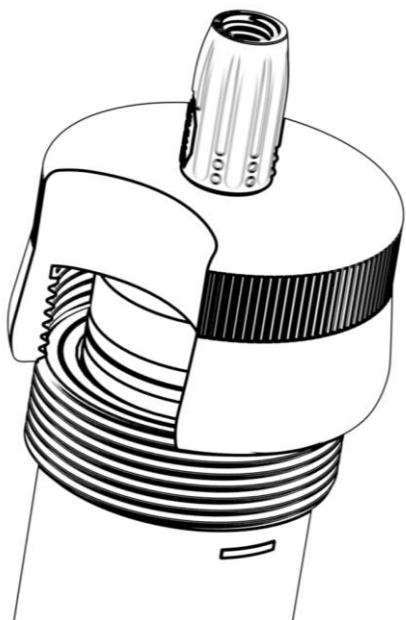
Never fit or remove endpieces to the column using a non-axial, side to side motion. This may damage the endpiece or cause the chromatographic tube to break

Assembling the column

When using a column with one fixed and one adjustable end piece, it is usual to insert the fixed endpiece first, fill the column and finally assemble and fit the adjustable endpiece.

Fitting the fixed end piece

1. Carefully push the PTFE seal of the endpiece into the end of the glass tube until the first o-ring contacts the glass and resistance is felt. The retaining cap should contact the tube thread.



Always keep the endpiece axially in line with the column; do not insert at an angle as this may damage the seal

Pre-wetting the PTFE seal, o-rings and entrance to the glass tube with water or buffer can assist with insertion.

2. Turn the retaining cap anti clockwise until a click is heard, the threads inside the retaining cap and on the tube thread can now engage. Slowly screw one onto the other,

the o-rings will give extra resistance as they enter the glass tube. The retaining caps do not need to be tightened.



Before use, examine the chromatographic tube carefully to ensure that it is in good condition. Do not use if it is scratched, chipped, cracked or etched. Defects can seriously weaken the glass and make it prone to breakage during use.

Packing the column

The column can now be filled and packed with the chosen media, as directed by the manufacturer.

The chromatographic tube has graduation marks ⑦ along its length at 10mm intervals. These help with filling the column to a specific bed height. A pressure and volume label ⑨ describes the maximum working pressure and an equation to calculate the bed volume. Further volume information is at the end of this data sheet. The graduation marks are provided as a guide only.

Using a Column Packing Sleeve

A Column Packing Sleeve is separately available. It connects two chromatographic tubes of the same bore size end to end the second becoming a slurry reservoir. This enables a larger volume of media slurry to be packed into the column, undisturbed, compared to filling and topping-up only the target tube. The endpiece is fitted normally into the bottom of the target tube, the sleeve is screwed on and the reservoir tube is screwed into the sleeve. The media can be packed under gravity or for pressure assistance, fit the



second endpiece into the reservoir tube. Please note pressure ratings of the sleeve. Once packed, the top tube and sleeve can be removed and the top endpiece fitted into the packed column.

The column should be filled with media no higher than the last graduation mark on the glass column. This will ensure that the media will not be over compressed or disturbed during insertion of the second endpiece.

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Fitting and adjusting the adjustable endpiece

The adjusting mechanism allows the endpiece to be set in position in the chromatographic tube to give the desired bed height and enables the endpiece to be finely adjusted to sit on the surface of the packed bed with minimum disturbance to the media.

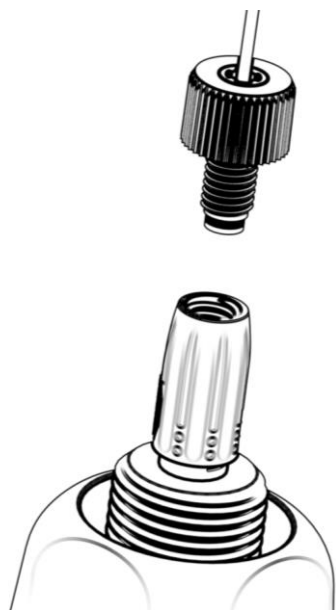
1. Close the column outlet port (closure device is not part of column kit).
2. Adjust the level of liquid in the column so that 1-2 cm of liquid is above the level of the bed.
3. Screw the adjusting nut and retaining cap fully onto the endpiece.
4. Make a tubing connection into the connection cap.
5. With the frit uppermost, pump buffer through the adjustable endpiece until the endpiece is primed and the frit is wetted.
3. Carefully push the PTFE seal of the endpiece into the end of the glass tube until the o-ring contacts the glass and resistance is felt. The retaining cap should contact the tube thread.

Always keep the endpiece in line with the column; do not insert at an angle as this may damage the seal.

Pre-wetting the PTFE seal, o-rings and entrance to the glass tube with water or buffer can assist with insertion.

6. Turn the retaining cap anti clockwise until a click is heard, the threads inside the retaining cap and on the tube thread can now engage. Slowly screw one onto the other
7. The o-rings will give extra resistance as they enter the glass tube. The retaining caps do not need to be tightened.
8. Hold the column and slowly turn the adjusting nut clockwise to move the plunger to the desired position in the tube. Ensure no air is trapped between the bed and frit.

When the column is pressurised it can become difficult or not possible to turn the adjusting nut to move the adjustable endpiece because of the backpressure generated. To adjust the position of the endpiece in the column, it is recommended the column is disconnected from the system.



Connecting tubing to the column

Omnifit supply many fitting and ferrule systems suitable for making tubing connections to the column and a selection of these are supplied with each complete column kit.

The endpieces are fitted with connection caps that have either 1/4"-28 or 10-32 threads, depending on column

bore size. M6 connector caps are supplied in the column kit if the column has an M6 male fitting. The chosen fitting should be screwed into the connector cap until finger tight.

Changing frits

A frit kit is supplied with complete columns and a range of replacement frits in a range of pore sizes and materials are also available. To ensure optimum flow and media retention, it may be necessary to exchange the frits assembled in the column to a frit with a different pore size. To assist with this process, frit removal tools are available separately. Please contact your local representative for more details of these tools. Good practice requires the use of degassed and pre-filtered solvents when using the column. Particulates within the solvent may prematurely block frits or cause damage to the packed media. Always ensure that the pore size of the frit is considerably smaller than that of the media and is of a material to provide good resistance and back-pressure performance.

Considerably more backpressure would be generated when using PTFE frits rather than Polyethylene due to the nature of the material.

If in any doubt about the use of this product, please consult with your local Omnifit representative.

Replacement parts and accessories

Complete Omnifit columns and replacement components are available. Additional adjustable endpieces can be purchased separately and used to replace the fixed end piece(s) supplied to further extend the range of bed heights possible. For further accessories, replacement parts and catalogue numbers, please contact your local representative or visit our website at www.dibaind.com.

Material resistance

Table data refers to 6.6mm to 50mm columns, * is specific to 5mm bore only

#	Item	Material	Resistant to Fluid contact and autoclave
1	Connection cap	Glass filled Polypropylene	No
		*PEEK	Yes
2	Plunger	PTFE	Yes
		*PEEK	Yes
3	Adjusting nut	Acetal	No
4	Retaining cap	Acetal	No
5	O-ring	FKM/FPM	Yes
6	Frit	Polyethylene	Yes
7	Graduation marks	Glass	Yes
8	Glass tube	Borosilicate glass	Yes
9	Pressure label	Glass	Yes
10	Tube thread	PEEK	No
11	Plunger	PTFE	Yes
		*PEEK	Yes
12	Retaining cap	Acetal	No

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Volumes and bed heights

ID mm		Length mm	FF		AF				AA			
			bed height (cm)	volume (ml)	bed height (cm)		volume (ml)		bed height (cm)		volume (ml)	
			Min/Max	Min/Max	Min	Max	Min	Max	Min	Max	Min	Max
5	x	50	2.0	0.4	0.0	2.0	0.0	0.4	0	2.0	0	0.4
5	x	100	7.0	1.4	1.0	7.0	0.2	1.4	0	7.0	0	1.4
5	x	150	12.0	2.4	6.0	12.0	1.2	2.4	0	12.0	0	2.4
5	x	250	22.0	4.3	16.0	22.0	3.1	4.3	10.0	22.0	2.0	4.3
5	x	330	30.0	5.9	24.0	30.0	4.7	5.9	18.0	30.0	3.5	5.9
5	x	400	37.0	7.3	31.0	37.0	6.1	7.3	25.0	37.0	4.9	7.3
6.6	x	50	2.0	0.7	0.2	2.0	0.1	0.7	0.2	2.0	0.1	0.7
6.6	x	100	7.0	2.4	0.2	7.0	0.1	2.4	0.2	7.0	0.1	2.4
6.6	x	150	12.0	4.1	3.8	12.0	1.4	4.1	3.8	12.0	0.1	4.1
6.6	x	250	22.0	7.5	13.8	22.0	4.8	7.5	13.8	22.0	2.1	7.5
6.6	x	330	30.0	10.3	21.8	30.0	7.5	10.3	21.8	30.0	4.8	10.3
6.6	x	400	37.0	12.7	28.8	37.0	9.9	12.7	28.8	37.0	7.2	12.7
10	x	100	7.0	5.5	0.2	7.0	0.2	5.5	0.2	7.0	0.2	5.5
10	x	150	12.0	9.4	3.8	12.0	3.1	9.4	3.8	12.0	0.2	9.4
10	x	250	22.0	17.3	13.8	22.0	11.0	17.3	13.8	22.0	4.7	17.3
10	x	330	30.0	23.6	21.8	30.0	17.3	23.6	21.8	30.0	11.0	23.6
10	x	400	37.0	29.1	28.8	37.0	22.8	29.1	28.8	37.0	16.5	29.1
10	x	500	47.0	36.9	38.8	47.0	30.6	36.9	38.8	47.0	24.3	36.9
15	x	100	7.0	12.4	0.2	7.0	0.4	12.4	0.2	7.0	0.4	12.4
15	x	150	12.0	21.2	3.8	12.0	7.1	21.2	3.8	12.0	0.4	21.2
15	x	250	22.0	38.9	13.8	22.0	24.7	38.9	13.8	22.0	10.6	38.9
15	x	330	30.0	53.0	21.8	30.0	38.9	53.0	21.8	30.0	24.7	53.0
15	x	400	37.0	65.4	28.8	37.0	51.2	65.4	28.8	37.0	37.1	65.4
15	x	500	47.0	83.1	38.8	47.0	68.9	83.1	38.8	47.0	54.8	83.1
25	x	100	7.0	34.4	0.2	7.0	1.2	34.4	0.2	7.0	1.2	34.4
25	x	150	12.0	58.9	3.8	12.0	19.6	58.9	3.8	12.0	1.2	58.9
25	x	250	22.0	108.0	13.8	22.0	68.7	108.0	13.8	22.0	29.5	108.0
25	x	330	30.0	147.3	21.8	30.0	108.0	147.3	21.8	30.0	68.7	147.3
25	x	400	37.0	181.6	28.8	37.0	142.4	181.6	28.8	37.0	103.1	181.6
25	x	500	47.0	230.7	38.8	47.0	191.4	230.7	38.8	47.0	152.2	230.7
35	x	150	12.0	115.5	3.8	12.0	38.5	115.5	3.8	12.0	2.3	115.5
35	x	250	22.0	211.7	13.8	22.0	134.7	211.7	13.8	22.0	57.7	211.7
35	x	330	30.0	288.6	21.8	30.0	211.7	288.6	21.8	30.0	134.7	288.6
35	x	400	37.0	356.0	28.8	37.0	279.0	356.0	28.8	37.0	202.0	356.0
50.5	x	250	22.0	440.7	13.8	22.0	280.4	440.7	13.8	22.0	120.2	440.7
50.5	x	330	30.0	600.9	21.8	30.0	440.7	600.9	21.8	30.0	280.4	600.9
50.5	x	400	37.0	741.1	28.8	37.0	580.9	741.1	28.8	37.0	420.6	741.1
50.5	x	500	47.0	941.4	38.8	47.0	781.2	941.4	38.8	47.0	620.9	941.4

Pressure Ratings

	5		6		10		15		25		35		50	
	AF	FF	AF	FF	AF	FF	AF	FF	AF	FF	AF	FF	AF	FF
Hot 40°C	1200	1200	300	900	300	600	300	300	150	150	150	150	100	100
Cold 4°C	1200	1200	300	900	300	600	300	300	150	150	NR	NR	NR	NR

NR = not recommended.

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