

YMC Glass Columns

For Laboratory
Scale Applications



Biocompatible
Self-packing
Easy Handling

YMC Glass Columns

Biochromatography is widely used for high-performance downstream processing techniques for a wide range of compounds, including proteins, peptides or nucleic acids. When using various chromatographic techniques

such as ion exchange, affinity or gel permeation chromatography, high-performance separation media are increasingly used and, as a result, higher demands are made on the quality of the column hardware.

Laboratory Scale:

ECO and ECO^{PLUS} Glass Columns

ECO columns are glass columns for use with almost all types of soft gels and medium pressure liquid chromatography applications. A heating/cooling jacket option can be supplied on request.

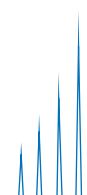
ECO^{PLUS} columns meet the highest criteria for professional laboratory use. Particular attention has been paid to the column volume ranges and the pressure resistance, so that high flow rates, performance and efficiency can be achieved.

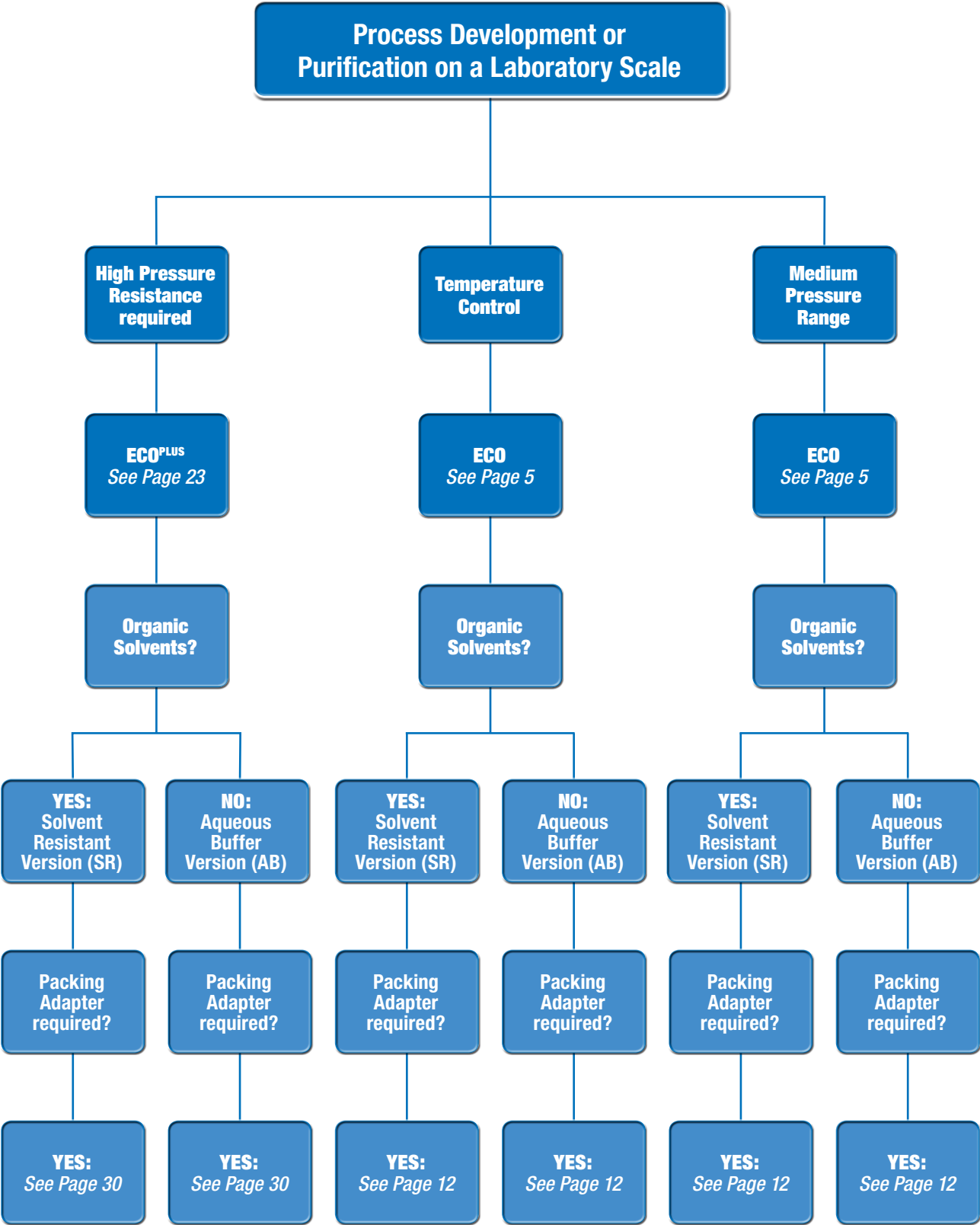


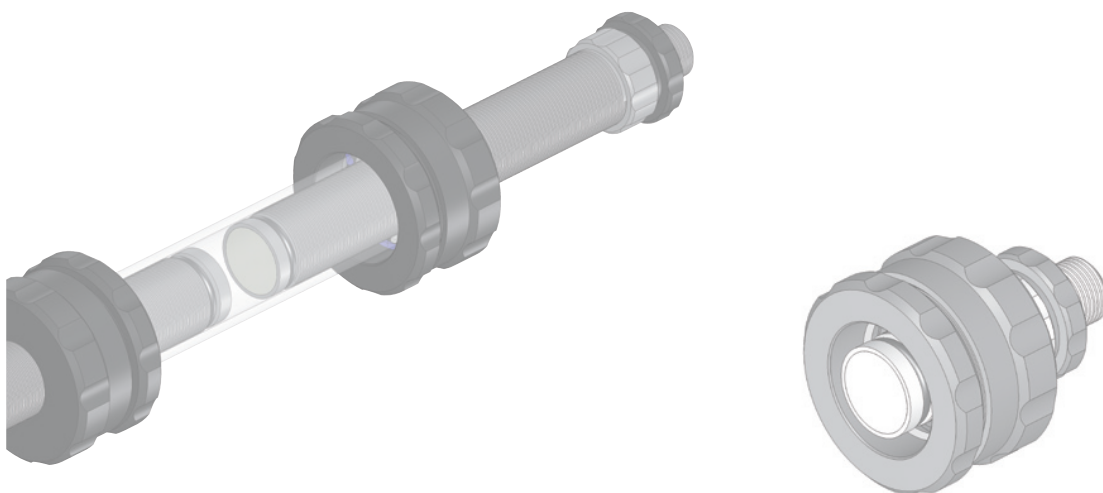
Contents

page

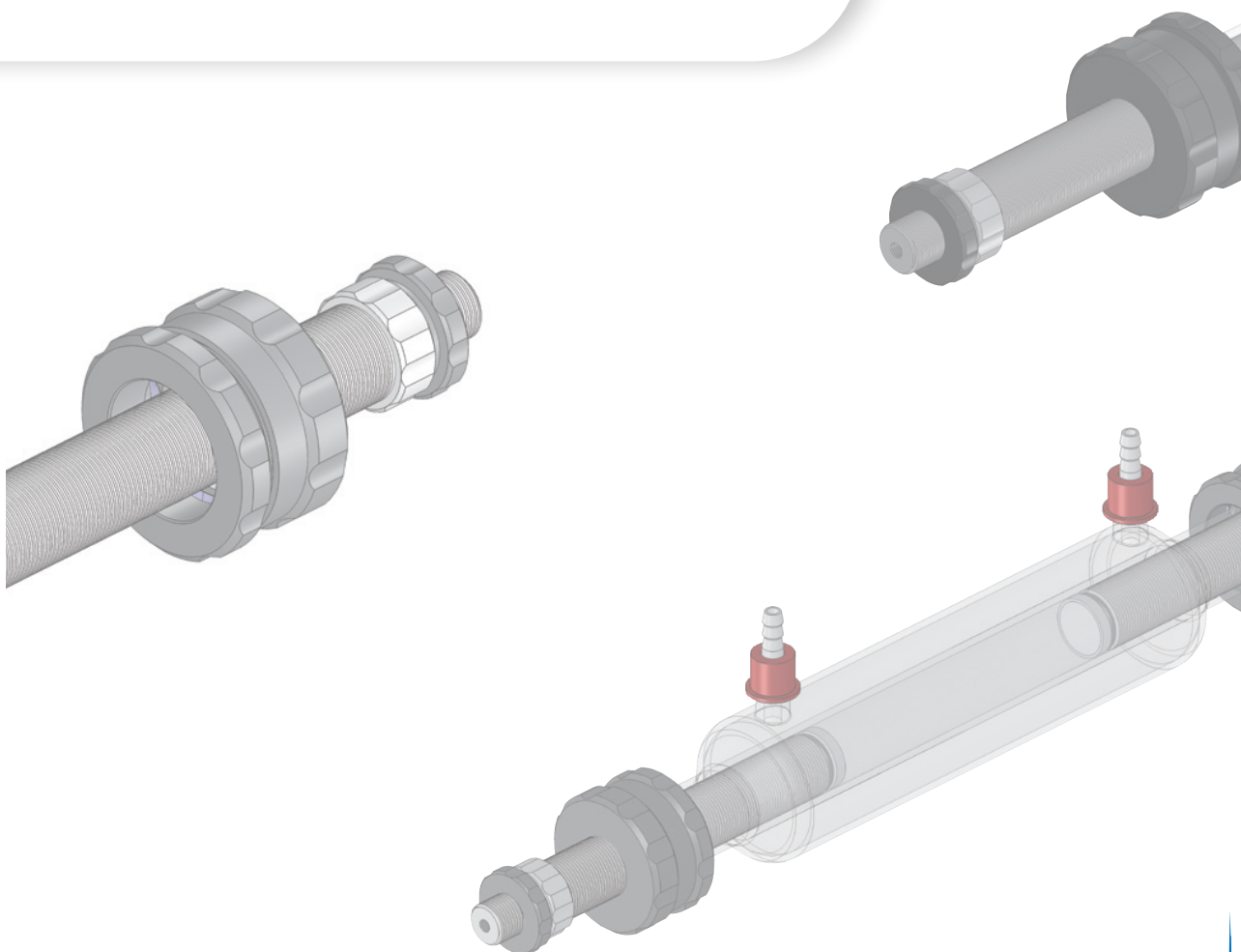
Selection Guide	4
Glass columns for analytical and preparative MPLC applications: ECO	5–17
Specifications	8–9
Chemical Resistance	10–11
Packing Adapters	12–13
Ordering Guide	14–15
Accessories and Spare Parts	16–17
ECO and ECO^{PLUS} Glass Column Accessories	18–19
Column Version Overview	20–21
Glass columns for high pressure applications: ECO^{PLUS}	23–35
Specifications	26–27
Chemical Resistance	28–29
Packing Adapters	30–31
Accessories and Spare Parts	32–33
Ordering Guide	34–35
Training and Seminars	36
Laboratory Services	37
Also of interest	38
Questionnaire for YMC Glass Columns	39







ECO Glass Columns



ECO Glass Columns

- **First choice for medium pressure liquid chromatography (MPLC)**
- **Pressure limit 5–30 bar**
- **Heating/cooling jacket available**
- **70 and 80 mm ID columns with column stands available**
- Compatible with any LC system
- For all types of silica and soft gels
- Aqueous buffers and solvents
- Temperature range 4–40°C
- Easy self-packing

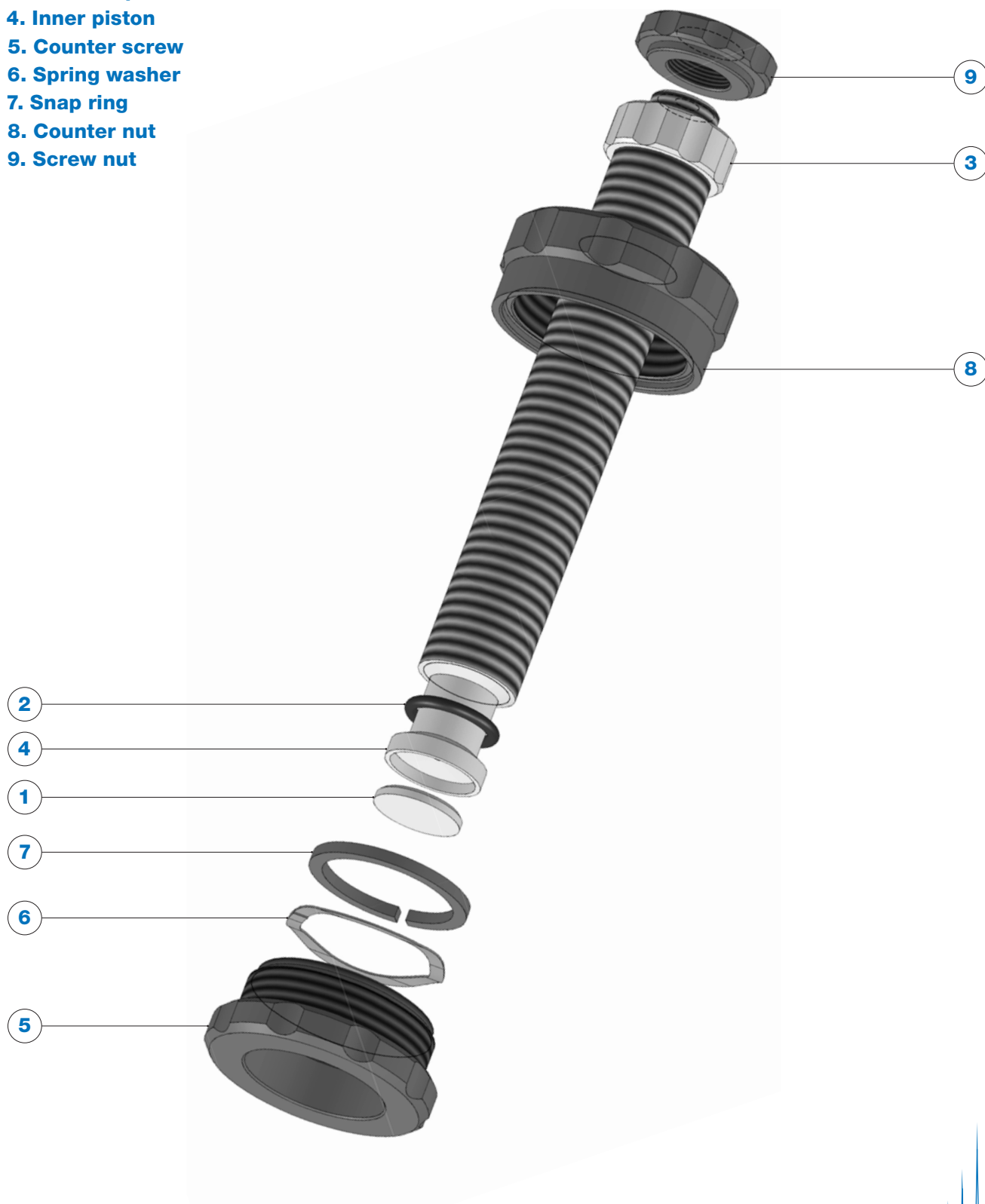
ECO columns are glass columns suitable for all types of soft gel and medium pressure (pressure limit 5 – 30 bar) liquid chromatography applications. With a choice of one or two adjustable length pistons, they are available in two versions: **AB (aqueous buffer)** for use with aqueous buffers and cold room applications and **SR (solvent resistant)** for all forms of normal and reversed phase chromatography.

ECO columns are produced using high-precision CNC manufacturing. They are competitively priced and equipped with a screw-lock system which makes it possible to open and seal the column simply and quickly.

Each column passes a quality control pressure test. A water-jacketed option can be supplied on request.

Drawing of Variable Column End Piece – ECO

- 1. Frit
- 2. O-ring
- 3. External piston
- 4. Inner piston
- 5. Counter screw
- 6. Spring washer
- 7. Snap ring
- 8. Counter nut
- 9. Screw nut



Specifications

Parameter	Standard Columns
Inner diameters [mm]	10, 15, 25, 50, 70, 80
Bed lengths [mm]	120, 200, 450, 750, 1000
Pressure range* [bar]	30–5
Temperature range [°C]	4–40

Versions	AB (Aqueous Buffer)
	SR (Solvent Resistant)
Combinations of pistons	Two adjustable pistons: Multivario
	One adjustable piston: Vario

Wetted parts	AB: POM pistons, glass or PE frits, Viton or EPDM O-ring, borosilicate glass body
	SR: PVDF pistons, glass or stainless steel frits, Kalrez® O-ring, borosilicate glass body
Connections	The columns are supplied with different adapters to allow direct connection to any LC-system (e.g. ÄKTA sytem)
Accessories supplied for columns with ID 10–15 mm	1 x frit removal tool 2 x plugs, PTFE (1/4"-28G) 1 x 1 m FEP tubing (0.8 x 1.6 mm) 4 x 1/4"-28G nut and ferrule for 1/16" tubing (collapsible) 2 x M6 nut and ferrule for 1/16" tubing 2 x 10-32 nut and ferrule for 1/16" tubing 2 x anti-kink tube protector
Accessories supplied for columns with ID 25–80 mm	1 x frit removal tool 2 x plugs, PTFE (1/4"-28G) 1 x 1 m FEP tubing (1.6 or 2.4 x 3.2 mm) 4 x 1/4"-28G nut and ferrule for 1/8" tubing (collapsible) 2 x M6 nut and ferrule for 1/8" tubing

*Pressure limit depends on inner diameter.

Specifications

Your benefit of Multivario option:
Greater flexibility due to
expanded bed length and
column volume ranges!

What is the difference between Vario and Multivario options?

Adjustable and non-adjustable (fixed) pistons are available for the ECO columns.

Two different options are available for combining these two pistons:

1. Vario: One adjustable and one fixed piston

2. Multivario: Two adjustable pistons

The selection of the option depends on the required ranges of bed lengths and column volumes.

Inner diameter column (mm)	Pressure limit (bar)	One adjustable piston (Vario)		Two adjustable pistons (Multivario)	
		Bed length range (mm)	Column volume range (mL)	Bed length range (mm)	Column volume range (mL)
10	30	0–120	0–9.4	0–120	0–9.4
		80–200	6.3–16	0–200	0–16
		330–450	26–35	210–450	17–35
		630–750	50–59	510–750	40–59
		880–1000	69–79	760–1000	60–79
15	25	0–120	0–21	0–120	0–21
		80–200	14–35	0–200	0–35
		330–450	58–80	210–450	37–80
		630–750	111–133	510–750	90–133
		880–1000	156–177	760–1000	134–177
25	15	0–120	0–59	0–120	0–59
		80–200	39–98	0–200	0–98
		330–450	162–221	210–450	103–221
		630–750	309–368	510–750	250–368
		880–1000	432–491	760–1000	373–491
50	10	0–120	0–236	0–120	0–236
		80–200	157–393	0–200	0–393
		330–450	648–884	210–450	412–884
		630–750	1237–1473	510–750	1001–1473
		880–1000	1728–1964	760–1000	1492–1964
70	5			0–120	0–462
				0–200	0–770
				90–450	356–1732
				390–750	1501–2886
				640–1000	2463–3848
80	5			0–120	0–603
				0–200	0–1005
				90–450	452–2262
				390–750	1960–3770
				640–1000	3217–5026

Chemical resistance

On the following two pages, the chemical resistances (standard conditions) for the available standard versions are listed.

ECO – AB version

Solvent	Columns with 10–50 mm ID POM piston, Viton O-ring and glass frit	Columns with 70–80 mm ID POM piston, EPDM O-ring and PE frit
Acetone	Not resistant	Resistant
Acetonitrile	Not resistant	Not resistant
Ammonium dihydrogen phosphate	Limited resistant	Resistant
Cyclohexane	Resistant	Not resistant
Dichloromethane	Limited resistant	Not resistant
EDTA	Resistant	Resistant
Acetic acid (5 %)	Resistant	Resistant
Ethanol	Resistant	Resistant
Ethyl acetate	Not resistant	Limited resistant
n-hexane	Resistant	Not resistant
Isopropanol	Resistant	Resistant
Methanol	Limited resistant	Resistant
NaOH (1 M)	Limited resistant	Resistant
HCl (1 M)	Not resistant	Not resistant

Not resistant

Limited resistant

Resistant

Chemical resistance

ECO – SR version

Solvent	Columns with 10–50 mm ID PVDF piston, Kalrez O-ring and glass frit	Columns with 70–80 mm ID PVDF piston, Kalrez O-ring and stainless steel frit
Acetone	Not resistant	Not resistant
Acetonitrile	Limited resistant	Limited resistant
Ammonium dihydrogen phosphate	Resistant	Resistant
Cyclohexane	Resistant	Resistant
Dichloromethane	Resistant	Resistant
EDTA	Resistant	Resistant
Acetic acid (5 %)	Resistant	Resistant
Ethanol	Resistant	Resistant
Ethyl acetate	Resistant	Resistant
n-hexane	Resistant	Resistant
Isopropanol	Resistant	Resistant
Methanol	Resistant	Resistant
NaOH (1 M)	Resistant	Resistant
HCl (1 M)	Resistant	Not resistant

Not resistant

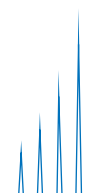
Limited resistant

Resistant

If your solvent is not listed, please contact us for chemical resistance check.

Note: The resistance of the standard versions is based on the resistance of the each wetted part. If one part is limited or not resistant, the whole column is marked with this characteristic as it is the critical part thereof.

For all columns, where the combination of the wetted parts varies from the above listed ones, the chemical resistance can vary, too. Therefore, please contact us if you need assistance regarding the chemical resistance.



For more information
on column packing download
the ECO manual or visit one
of our seminars!

Packing Adapters

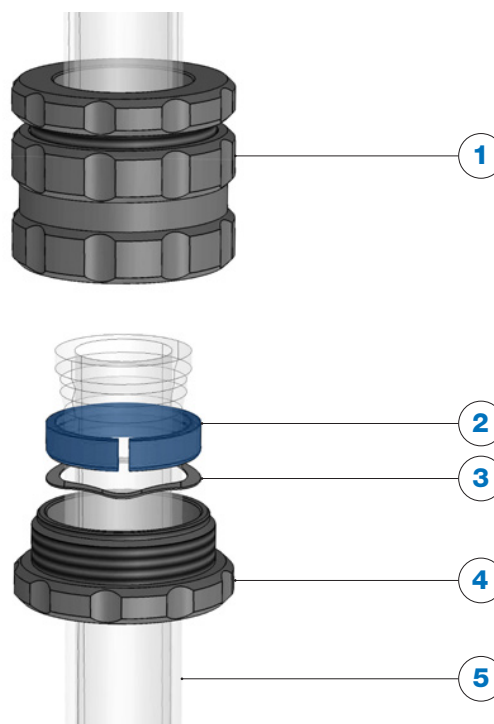
Do I need a packing adapter?

Packing adapters are used if the packing method requires additional column volume during the packing process.

More volume than given by the column alone may be required when the column is packed with the slurry method. A suspension of material and packing sol-

vent in a concentration of approximately 30 - 50% is used, depending on the packing material. The additional packing solvent above the finished column bed will be removed later but during the packing process the packing adapter gives the additional volume which is required for this method.

1. Coupling unit
2. Snap ring
3. Spring washer
4. Counter screw
5. Glass body



What are the components of the packing adapter?

The ECO series packing adapters consist of a column coupler and an empty glass body. These must be of the same diameter as the column to be packed and must be used as packing adapters, not

for extending the length of a column body during use. The product manual supplied with each column contains detailed examples of dry packing and slurry packing techniques.

How to install the packing adapter?

1. Remove the upper end piece from the column body.
2. Put the counter screw of the coupling unit on the column body.
Take care that just the blue column coupler snap ring is included.
3. Install the end piece on top of the glass body of the packing adapter.

Packing Adapters

One of our lab services
is glass column packing with
your choice of material.

How to order a packing adapter?

1. Select the correct column coupler

	Inner diameter column	Identification for coupling unit	O-ring
Combinations	ECO10 (10 mm ID) ECO15 (15 mm ID) ECO25 (25 mm ID) ECO50 (50 mm ID) ECO70 (70 mm ID) ECO80 (80 mm ID)	KU/	V-3 Viton (AB, 10–50 mm ID) E EPDM (AB, 70–80 mm ID) K-3 Kalrez® (SR, 10–50 mm ID)
Example	ECO10	KU/	V-3
Inner diameter column	10 mm		
O-ring			10 mm ID column, AB version, Viton O-ring

2. Select the correct glass body

Glass bodies with the following dimensions are available:

Inner diameter (mm)	10, 15, 25, 50, 70, 80
Column length (mm)	120, 200, 450, 750, 1000

The length of the additional glass body used should be selected to allow:

- **Double the volume of slurry compared to the required packed bed volume if packing silica materials**
- **Triple the volume of slurry for softer packing materials**

The part number for the glass body is:

ECOID/length e.g. ECO10/120

If you need assistance in choosing the right packing adapter, please contact **YMC!**

Ordering Guide

The part numbers for the columns contain information on the column type, inner diameter, maximum bed length, piston type, frit porosity and seal (O-ring) material. In brackets, the corresponding ordering code is quoted.

1. Inner diameter of your column:

Inner Diameter [mm]	Pressure Limit [bar]
10 (ECO10)	30
15 (ECO15)	25
25 (ECO25)	15
50 (ECO50)	10
70 (ECO70)	5
80 (ECO80)	5

2. Maximum bed length

Maximum bed length [mm]
120 (120)
200 (200)
450 (450)
750 (750)
1000 (999)

3. Piston Type

I adjustable pistons: Vario (V)

II adjustable pistons: Multivario (M)

4. Frits

Porosity
10–16 µm (0)
16–40 µm (3)
40–100 µm (4)

5. O-rings

Material
Viton (V): AB versions, 10–50 mm ID
EPDM (E): AB versions, 70–80 mm ID
Kalrez® (K): SR versions, 10–80 mm ID

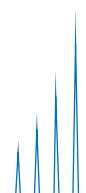
6. Temperature control

ECO glass columns are available with heating/cooling jackets.

These columns are only available with two adjustable pistons.

Ordering Guide

	Inner diameter column	Maximum bed length	Combination of pistons	Frit Porosity	O-ring material	Heating/cooling jacket
Combination	ECO10/ (10 mm)	120 (max. 120 mm)	V (I adjustable piston)	0 (10–16 µm)	V (Viton, AB)	K (only in combination with M)
	ECO15/ (15 mm)	200 (max. 200 mm)	M (II adjustable pistons)	3 (16–40 µm)	E (EPDM, AB)	
	ECO25/ (25 mm)	450 (max. 450 mm)		4 (40–100 µm)	K (Kalrez®, SR)	
	ECO50/ (50 mm)	750 (max. 750 mm)				
	ECO70/ (70 mm)	999 (max. 1000 mm)				
	ECO80/ (80 mm)					
Example	ECO10/	120	M	0	K	-K
Inner diameter column	10 mm					
Max. bed length		120 mm				
Combination of pistons			2 adjustable pistons (Multivario)			
Frit porosity				10–16 µm		
O-ring material					Solvent resistant version, Kalrez®	
Heating/cooling jacket						yes



Accessories and Spare Parts

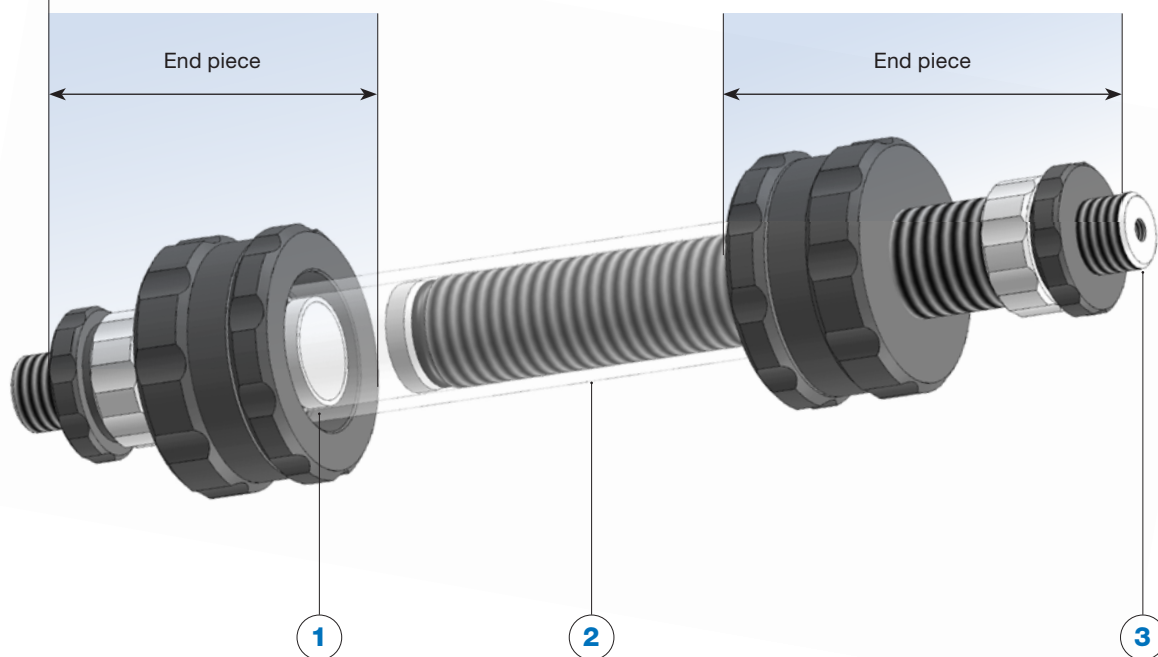
1. Column Stand: A column stand is available for ECO columns with 50, 70 and 80 mm ID.

2. Packing adapter: Packing adapters are available for all available inner diameters in different lengths. For more information, see pages 12 and 13.



Accessories and Spare Parts

End Pieces: Assembly includes inner/external piston, counter nut and screw, screw nut, snap ring, spring washer, O-ring and frit



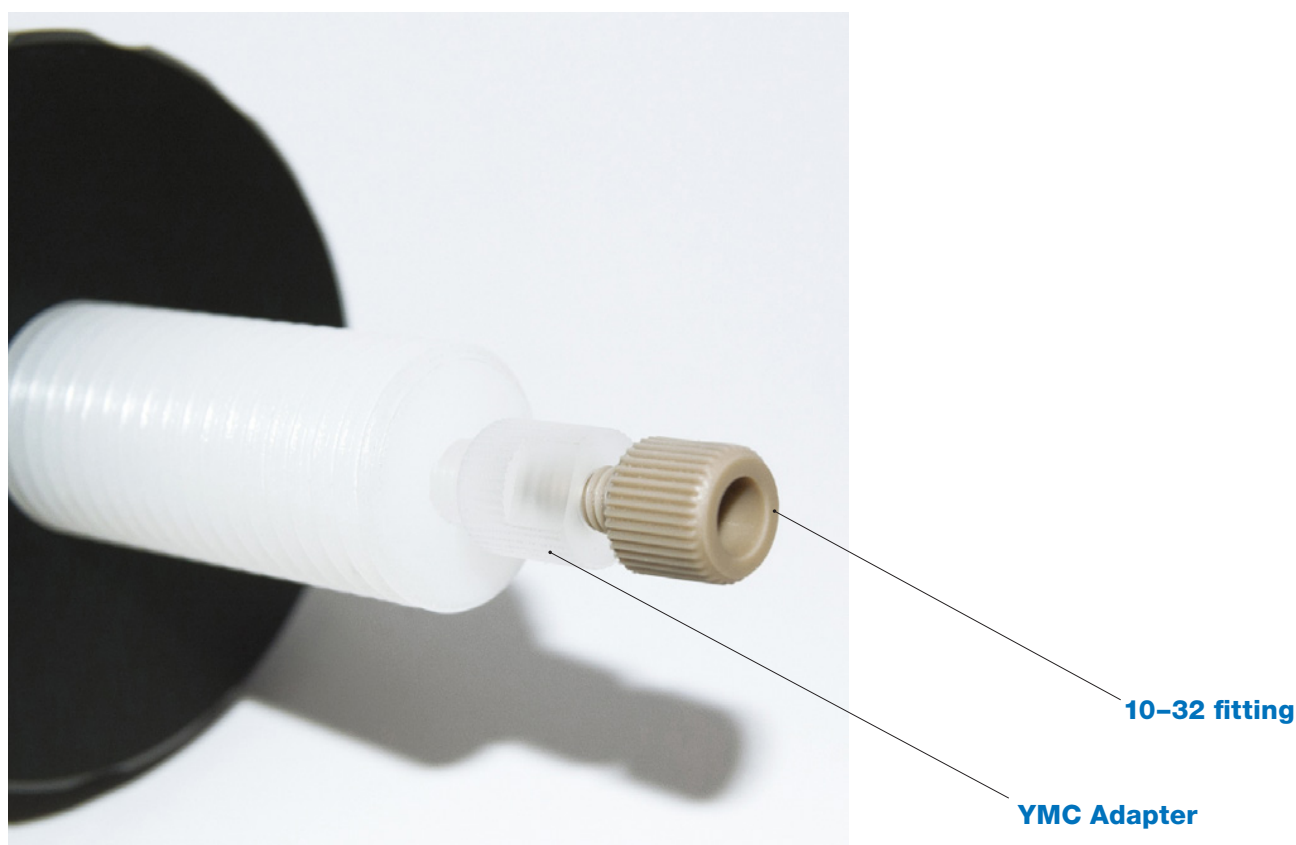
1. O-rings and frits
2. Glass body
3. Fittings and tubing/accessory pack

For ordering accessories or spare parts,
please check the price list at www.ymc.de or contact YMC!

Easy Connection of YMC Glass Columns to Äkta Systems

YMC have specifically designed an adapter to allow easy connection of YMC glass columns to Äkta systems. This adapter will allow direct connection of the 10-32 fittings of the Äkta systems to the inlets

and outlets of YMC glass columns. This adapter is compatible to all existing YMC glass columns with internal diameters between 10 to 50 mm and can be ordered as a pack of 2 pieces.





This tool helps you to open and close YMC glass columns.

The Handling-Loop is universally applicable to all available inner diameters of YMC ECO and ECO^{PLUS} glass column ranges.

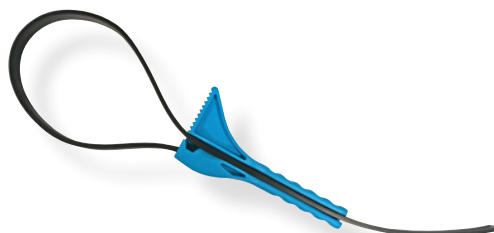
Ordering information

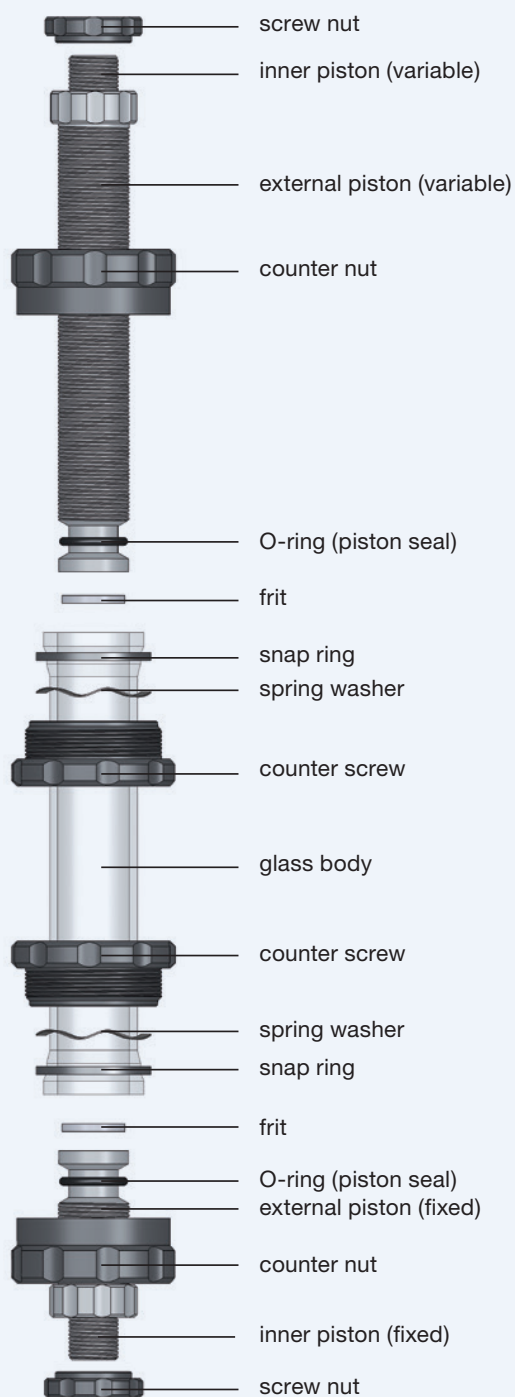
Product number: Handling-Loop

Universal strap wrench for ECO and ECO^{PLUS} columns (ID 5 – 80 mm)

The advantages of using the Handling-Loop

- ✓ Simplified opening of glass columns
- ✓ Universally applicable
- ✓ Easy grip especially with larger inner diameters





ECO

10, 15, 25, 50, 70, 80 mm ID

**120, 200, 450, 750, 1000 mm
max. bed lengths**

**Solvent resistant (SR) and
aqueous buffer (AB) versions**

AB & SR: 4–40 °C

5–30 bar

**Pistons:
POM, PVDF**

**Sealing:
Viton, EPDM, Kalrez®**

**Frits:
PE, glass or stainless steel**

**Glass Body:
Borosilicate glass 3.3**

ECO^{PLUS}

5, 10, 15, 25, 35, 50 mm ID

125, 250, 500 mm
max. bed lengths

Solvent resistant (SR) and
aqueous buffer (AB) versions

AB: 4–40 °C,
SR: 16–40 °C

15–80 bar

Pistons:
PE, PTFE

Sealing:
EPDM, PTFE

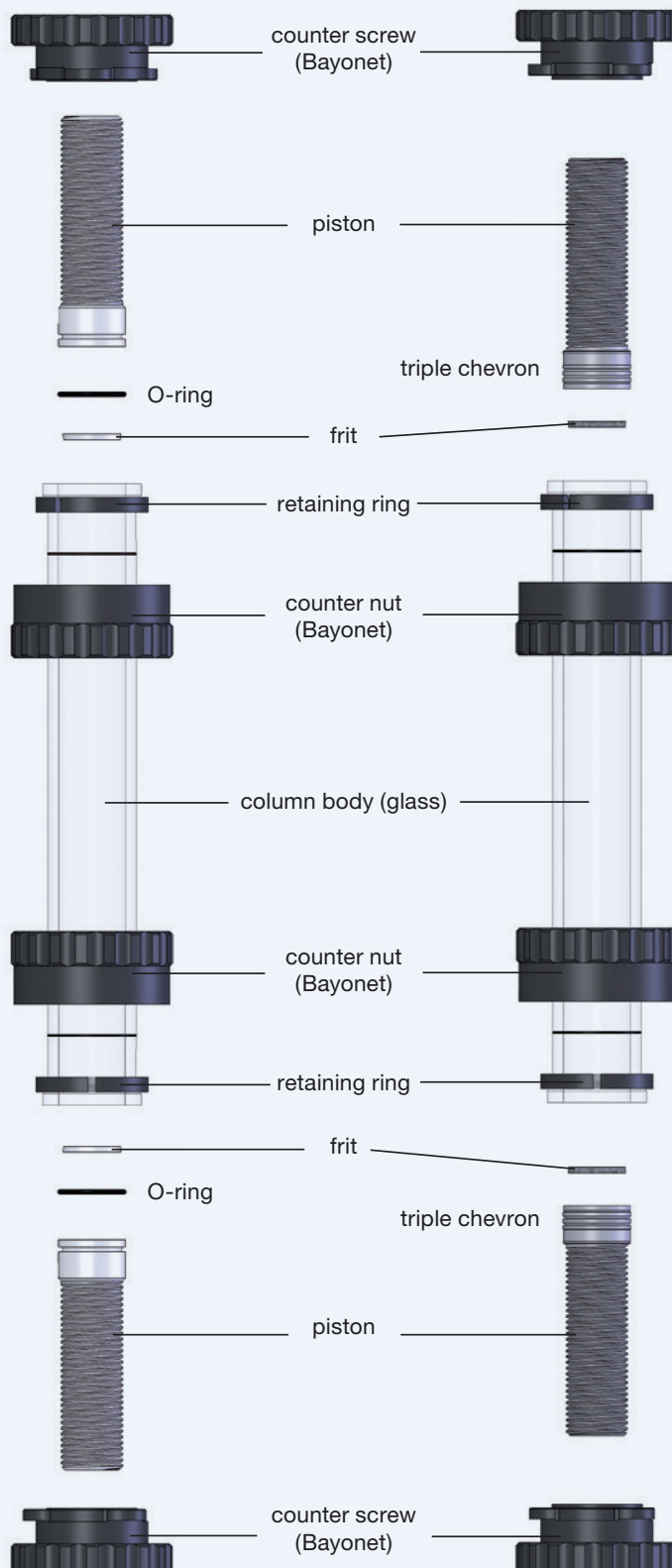
Frits:
PE, glass or stainless steel

Glass Body:
KPG* Borosilicate glass 3.3

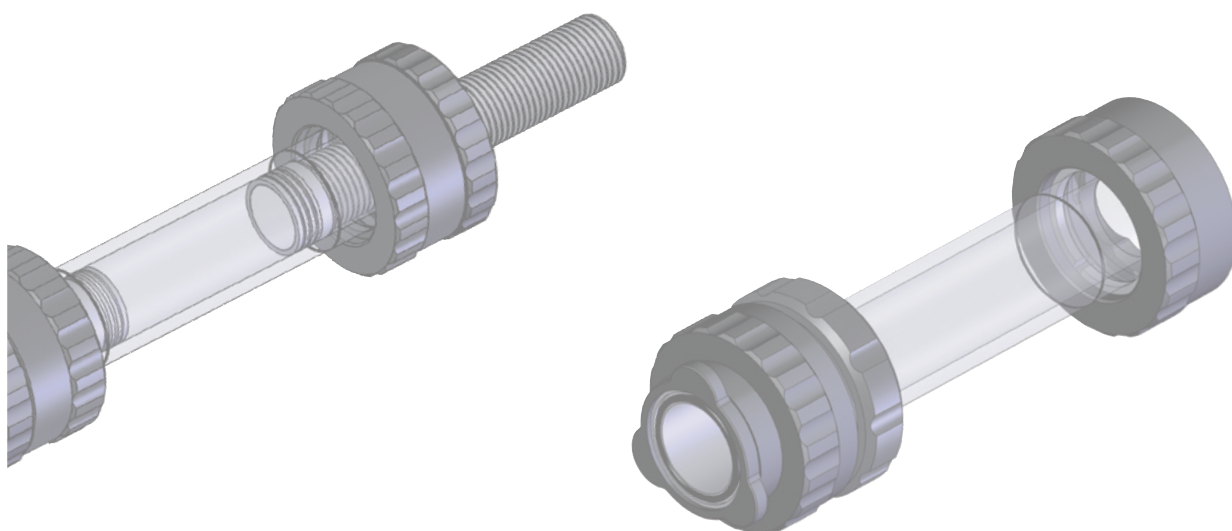
(*calibrated precision glass)

AB version

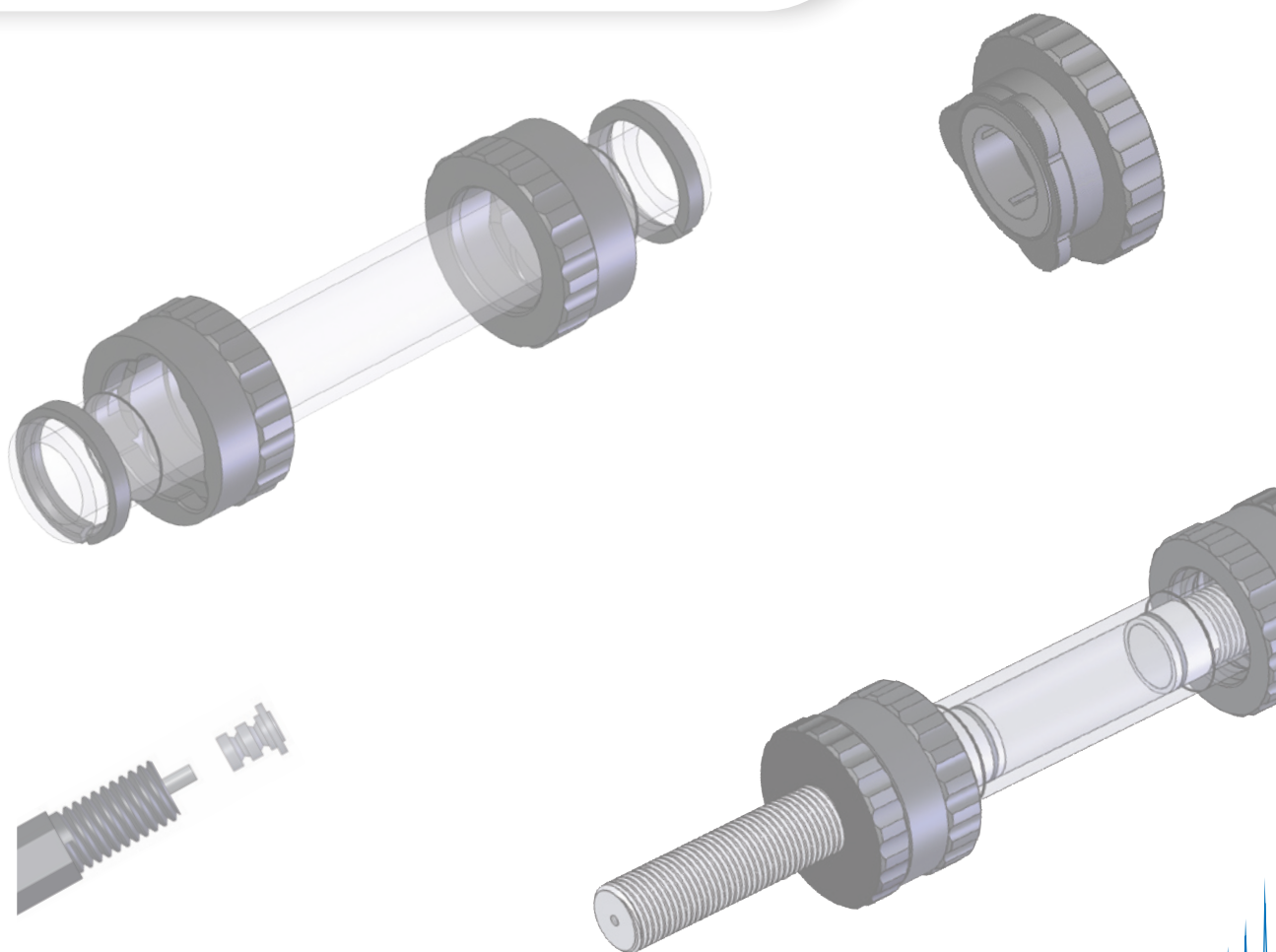
SR version







ECO^{PLUS} Glass Columns



ECO^{PLUS} Glass Columns

- **First choice for high pressure application (preparative HPLC)**
- **Pressure limit: 15–80 bar**
- **Columns with 5 mm ID available**
- Compatible with any LC system
- For all types of silica and soft gels
- Aqueous buffers and organic solvents
- Temperature range 4 - 40 °C (AB) or 16 – 40 °C (SR)
- Easy self packing

ECO^{PLUS} columns are multi-purpose columns for all types of liquid chromatography applications even with high operating pressures. The columns are available in two versions:

- 1. Aqueous buffer version (AB):**
For applications with aqueous buffers
- 2. Solvent resistant version (SR):**
For applications with organic solvents

Three different combinations of pistons are available for a wide range of bed lengths and volumes.

The solvent resistant pistons are equipped with Teflon chevrons for sealing, the AB versions with O-rings.

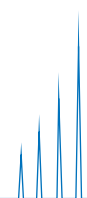
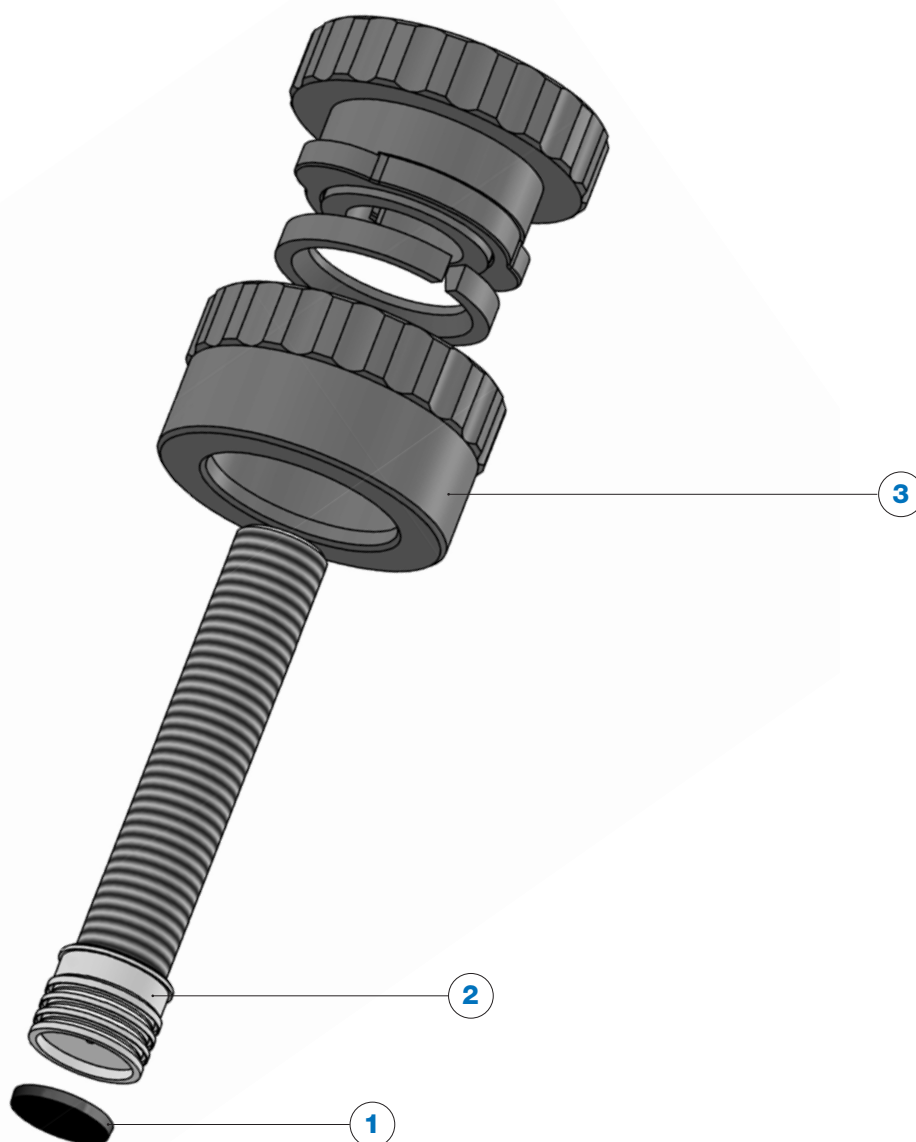
ECO^{PLUS} columns are suitable for the entire spectrum of normal phase and reversed phase chromatography as well as biochromatography.

All columns are produced in the YMC Europe facilities in Germany. The high pressure resistance is guaranteed by a special construction of the column including the locking system (Quick-Lock).

The high-quality columns are made using high precision CNC machines and undergo several rigorous quality controls before they are delivered.

Drawing of ECO^{PLUS} Solvent Resistant End Piece

- 1. Frit
- 2. Piston
- 3. Counter nut (Bayonet)



Specifications

Parameter	Standard Columns
Inner diameters [mm]	5, 10, 15, 25, 35, 50
Bed lengths [mm]	125, 250, 500
Pressure range* [bar]	15–80 bar
Temperature range [°C]	AB: 4–40, SR: 16–40

Versions	AB (Aqueous Buffer)
	SR (Solvent Resistant)
Combinations of pistons	Short (Two short pistons)
	Short/long (One short and one long piston)
	Long (Two long pistons)

Wetted parts	AB: PE pistons, PE frits, EPDM O-ring, KPG borosilicate glass 3.3 body
	SR: PTFE pistons, glass or stainless steel frits, PTFE chevrons, KPG borosilicate glass body
Connections	The columns are supplied with different adapters to allow direct connection to any LC-system (e.g. ÄKTA system)
Accessories supplied for columns with ID 5 mm	1 x frit removal tool 2 x plugs, PTFE (1/4"-28G) 1 x 1 m ETFE 1/16" capillary tubing pre-assembled 4 x 1/4"-28G screws and ferrules for 1/16" tubing 2 x M6 screws and ferrules for 1/16" tubing 2 x 10-32 screws and ferrules for 1/16" tubing
Accessories supplied for columns with ID 10–15 mm	1 x frit removal tool 2 x plugs, PTFE (1/4"-28G) 1 x 1 m FEP 1/16" capillary tubing (0.8 x 1.6 mm) 4 x 1/4"-28G screws and ferrules for 1/16" tubing 2 x M6 screws and ferrules for 1/16" tubing 2 x 10-32 screws and ferrules for 1/16" tubing
Accessories supplied for columns with ID 25–80 mm	1 x frit removal tool 2 x plugs, PTFE (1/4"-28G) 1 x 1 m FEP 1/8" capillary tubing (1.6 x 3.2 mm) 4 x 1/4"-28G screws and ferrules for 1/8" tubing 2 x M6 screws and ferrules for 1/8" tubing

Specifications

What is the difference between Short, Short/Long and Long?

For the ECO^{PLUS} column short and long pistons are available which can be combined in three different ways:

- 1. Short:** Two short pistons
- 2. Short/Long:** One short and one long piston
- 3. Long:** Two long pistons

The choice of the version depends on the required ranges of bed lengths and column volumes.

	Short pistons		Short/Long Pistons		Long pistons	
Inner diameter (mm)	Bed length range (mm)	Volume range (mL)	Bed length range (mm)	Volume range (mL)	Bed length range (mm)	Volume range (mL)
5	30–125	0.6–2.4	0–125	0–2.4	0–125	0–2.4
	150–250	3.0–4.9	70–250	1.4–4.9	0–250	0–4.9
	400–500	7.9–9.8	320–500	6.3–9.8	240–500	4.8–9.8
10	40–125	3.2–9.8	0–125	0–9.8	0–125	0–9.8
	160–250	13–19	80–250	6.2–19	0–250	0–19
	410–500	33–39	330–500	26–39	250–500	20–39
15	30–125	6–22	0–125	0–22	0–125	0–22
	155–250	28–44	75–250	14–44	0–250	0–44
	405–500	72–88	325–500	58–88	245–500	44–88
25	30–125	15–60	0–125	0–60	0–125	0–60
	160–250	80–120	80–250	40–120	0–250	0–120
	410–500	205–245	330–500	165–245	250–500	125–245
35	35–125	35–120	0–125	0–120	0–125	0–120
	160–250	155–240	80–250	80–240	0–250	0–240
	410–500	395–480	330–500	320–480	250–500	245–480
50	40–125	80–245	0–125	0–245	0–125	0–245
	170–250	335–490	90–250	180–490	0–250	0–490
	415–500	815–980	340–500	670–980	255–500	500–980

Pressure resistance

In order to guarantee the high pressure stability, special materials and a unique end piece system including the Quick-Lock system are used for the

ECO^{PLUS} columns. The pressure resistance depends on the inner diameter and the column version (AB or SR).

Inner Diameter [mm]	Pressure Limit [bar]
5	AB version: 80 bar, SR version: 80 bar
10	AB version: 80 bar, SR version: 50 bar
15	AB version: 70 bar, SR version: 50 bar
25	AB version: 50 bar, SR version: 50 bar
35	AB version: 40 bar, SR version: 40 bar
50	AB version: 30 bar, SR version: 15 bar

Chemical resistance

On the following two pages, the chemical resistances (standard conditions) for the available standard versions are listed.

ECO^{PLUS} – AB version

Solvent	Columns with 5–50 mm ID, PE pistons, PE frits, EPDM O-rings
Acetone	Resistant
Acetonitrile	Limited resistant
Ammonium dihydrogen phosphate	Resistant
Cyclohexane	Not resistant
Dichloromethane	Not resistant
EDTA	Resistant
Acetic acid (5 %)	Resistant
Ethanol	Resistant
Ethyl acetate	Limited resistant
n-hexane	Not resistant
Isopropanol	Resistant
Methanol	Resistant
NaOH (1 M)	Resistant
HCl (1 M)	Resistant

Not resistant

Limited resistant

Resistant

Chemical resistance

ECO^{PLUS} – SR version

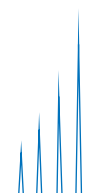
Solvent	Columns with 5 – 35 mm ID, PTFE piston, PTFE triple chevron lamellar seals, glass/stainless steel frits	Columns with 50 mm ID, PTFE pistons, Kalrez® O-rings, stainless steel frits
Acetone		
Acetonitrile		
Ammonium dihydrogen phosphate		
Cyclohexane		
Dichloromethane		
EDTA		
Acetic acid (5 %)		
Ethanol		
Ethyl acetate		
n-hexane		
Isopropanol		
Methanol		
NaOH (1 M)		
HCl (1 M)		

Resistant

If your solvent is not listed or you need a resistant column version which is not listed, please contact us for chemical resistance check or a custom made version.

Note: The resistance of the standard versions is based on the resistance of the each wetted part. If one part is limited or not resistant, the whole column is marked with this characteristic as it is the critical part thereof.

For all columns, where the combination of the wetted parts varies from the above listed ones, the chemical resistance can vary, too. Therefore, please contact us if you need assistance regarding the chemical resistance.



Packing Adapters

For more information
on column packing download
the ECO^{PLUS} manual or visit
one of our seminars!

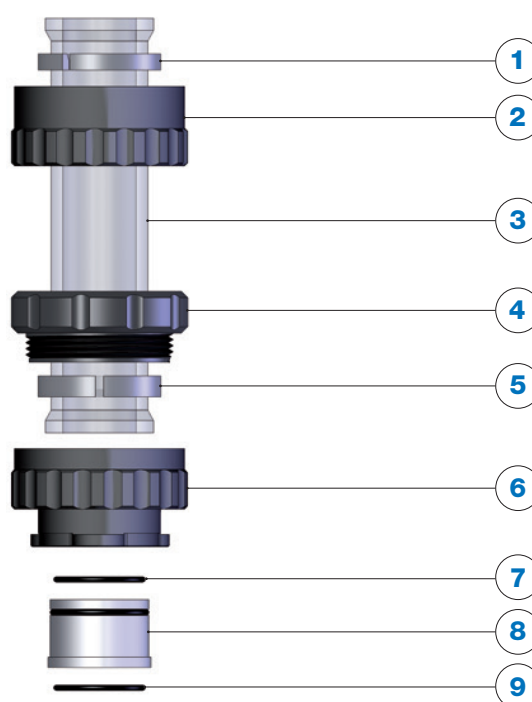
Do I need a packing adapter?

Packing adapters are used if the packing methods requires additional column volume during the packing process.

More volume than given by the column is required when the column is packed with the slurry method. A suspension of material and packing solvent in a

concentration of approximately 30 - 50% is used, depending on the packing material. The additional packing solvent above the finished column bed will be removed later but during the packing process the packing adapter gives the additional volume which is required for this method.

1. Snap ring (column version)
2. Counter nut (bayonet)
3. Glass body
(not included in column coupler)
4. Column coupler counter nut
5. Column coupler snap ring
6. Connection screw (bayonet)
7. O-ring
8. Teflon inset
9. O-ring



What are the components of the packing adapter?

The ECO^{PLUS} series of packing adapters consist of a column coupler and an empty glass body. These must be of the same diameter as the column to be packed and must be used as packing adapters,

not for extending the length of a column body during use. The product manual supplied with each column contains detailed examples of dry packing and slurry packing techniques.

How to install the packing adapter?

1. Remove the upper end piece from the column.
2. Add the column coupler counter nut (bayonet) including the column coupler snap ring to the column body.
3. Fix the connection screw and the counter nut first. Fix the column coupler counter nut afterwards.

Packing Adapters

One of our lab services
is glass column packing
with your material!

How to order a packing adapter?

1. Select the right column coupler

	Inner diameter column	Identification for coupling unit	O-ring
Combinations	TAC05 (5 mm ID) TAC10 (10 mm ID) TAC15 (15 mm ID) TAC25 (25 mm ID) TAC35 (35 mm ID) TAC50 (50 mm ID)	KU	-AB Viton O-ring -SR Kalrez® O-ring
Example	TAC10	KU	-AB
Inner diameter column	10 mm		
O-ring			Viton for aqueous buffer version

2. Select the right glass body

Glass bodies with the following dimensions are available:

Inner diameter (mm)	5, 10, 15, 25, 35, 50
Column length (mm)	125, 250, 500

The length of the additional glass body used should be selected to allow:

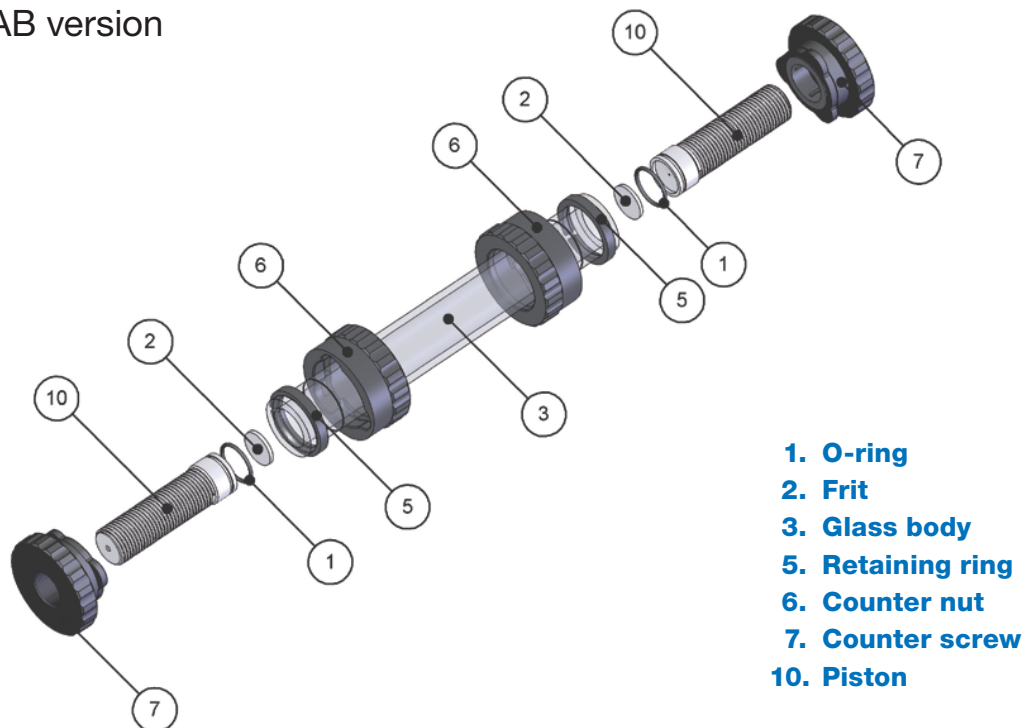
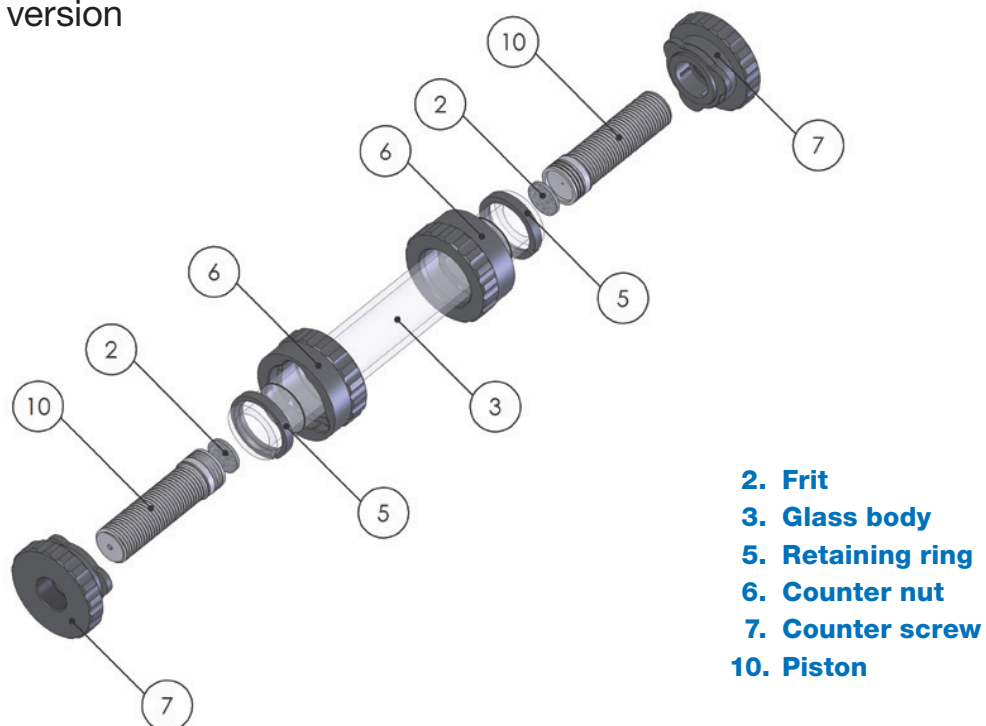
- **Double the volume of slurry compared to the required packed bed volume if packing silica materials**
- **Triple the volume of slurry for softer packing materials**

The part number for the glass body is:

TACID/length-2 e.g. TAC10/125-2

If you need assistance in choosing the right packing adapter, please contact **YMC!**

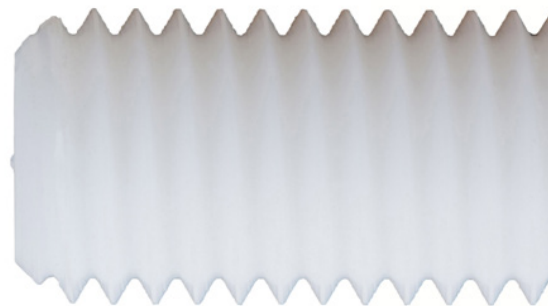
Accessories and Spare Parts

ECO^{PLUS} AB versionECO^{PLUS} SR version

Accessories and Spare Parts

Spare parts available for ECO^{PLUS} glass columns:

- Glass bodies
- Pistons
- O-rings
- Frits

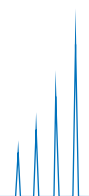


Accessories available for ECO^{PLUS} glass columns:

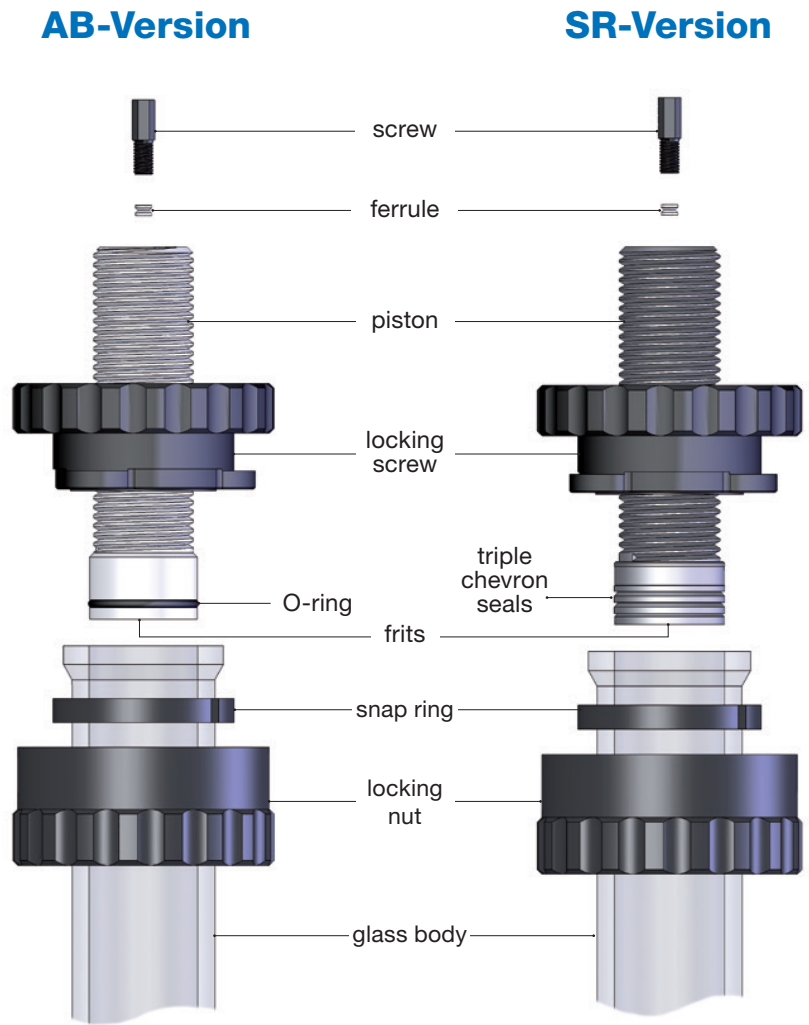
- Coupling units
- Tubing
- Fittings (nuts and ferrules) and adapters



For the complete listing of all available accessories and spare parts and their related ordering codes, please download our pricelists as PDF files from www.ymc.de.

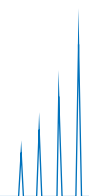


Ordering Guide



Ordering Guide

	Inner diameter column	Maximum bed length	Combination of pistons	Frit material	Frit porosity	Version
Combinations	TAC05/ (5 mm ID)	125 (max. 125 mm)	– (2 short pistons)	PE (polyethylene, AB version)	2 (2 µm)	-AB-2 (aqueous buffer)
	TAC10/ (10 mm ID)	250 (max. 250 mm)	SL (1 short + 1 long piston)	G (sintered glass, SR version ≤ 15 mm ID)	5 (5 µm, only for PE)	-SR-2 (solvent resistant)
	TAC15/ (15 mm ID)	500 (max. 500 mm)	L (2 long pistons)	S (stainless steel, SR version ≥ 25 mm ID)	0 (10 µm)	
	TAC25/ (25 mm ID)					
	TAC35/ (35 mm ID)					
	TAC50/ (50 mm ID)					
Example	TAC25/	500		S	2	-SR-2
Inner diameter column	25 mm					
Max. bed length		500 mm				
Combination of pistons			2 short pistons			
Frit material				stainless steel		
Frit porosity					2 µm	
Version						Solvent resistant



Training and Seminars

Packing techniques – laboratory-scale and pilot columns

ECO and ECO^{PLUS} as well as YMC Pilot^{PLUS} columns are designed for multiple packing processes with easy packing and unpacking procedures.

But how do you pack a column?

Attend one of our seminars and pack a column for yourself in the YMC application lab in Germany! Presentations and hands-on experience will enable you to pack laboratory scale and process scale columns safely and efficiently in your own labs. Important factors are discussed for safe handling of column hardware and packing materials with demonstrations and important hints for troubleshooting.

Contents

- Packing techniques (slurry- and dry-packing)
- Column performance assessment
- Hands-on training of column packing
- Troubleshooting

Target group

Chromatography operators with alternative qualifications
(laboratory assistant, technicians, engineers, chemists)

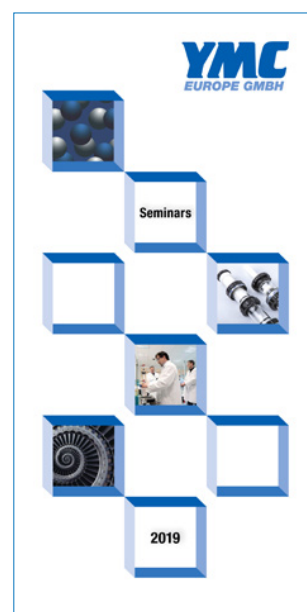
You can find actual dates for seminars in our seminar flyer at www.ymc.de

or you can contact us directly:

Phone: +49 2064 427-0

Fax: +49 2064 427-222

Email: info@ymc.de



Laboratory Services

Save time and purchase a packed column

If you are working on a tight schedule or you do not have any experience in column packing there is a solution!

Rely on the experience of YMC and ask for a packed ECO or ECO^{PLUS} column. Our knowledge of packing is your benefit!

Our services include packing of

- **ECO and ECO^{PLUS} columns**

Depending on your required bed length, you can choose a column from our portfolio. If you can't find a suitable standard product, we will gladly discuss the options of a customised column with you.

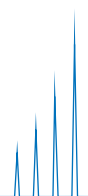
- **New glass columns and refill of your used ECO or ECO^{PLUS} column**

A second option to purchasing new column hardware is to use the option of our refill service if you already have a ECO or ECO^{PLUS} column. This service includes changing of frits and a quality control for the glass columns.

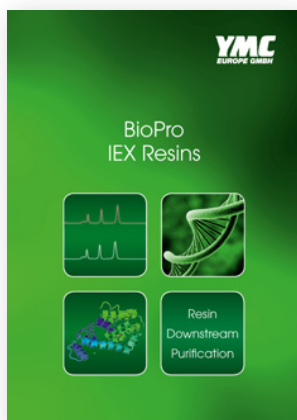
- **Stationary phases from YMC as well as from other producers**

If your method is restricted to a certain stationary phase, we pack your column according to your needs, using stationary phases made by YMC or any other producer.

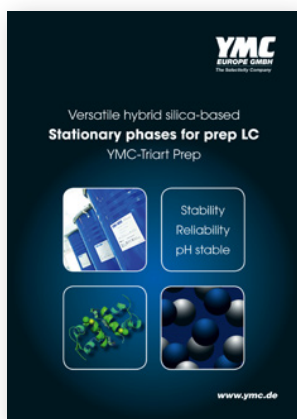
How it works:



Also of interest



YMC BioPro IEX Resins products are polymeric ion exchange resins for the purification of biological molecules. They represent one part of the three part YMC-Prep portfolio: silica, hybrid silica and polymer media.



Hybrid silica phase, stable between pH 2.0 – 10.0
Available with C18 and C8 bonding.

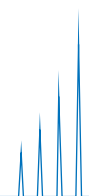


General purpose preparative phases manufactured using a high grade silica base. Available as silica or with C18, C8, C4, C1, phenyl, cyano, amino or diol bonding.

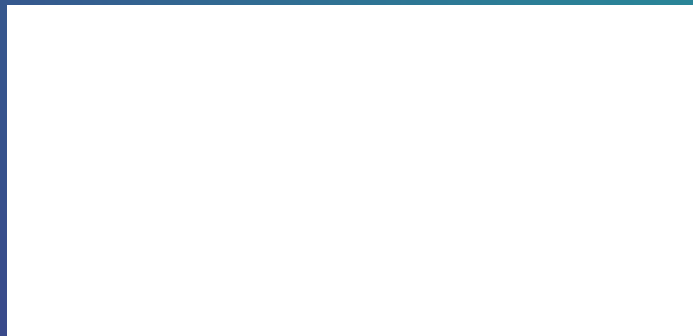
For help in selecting your laboratory glass column,
please fill in this questionnaire and send a scan to
info@ymc.de.

Questionnaire for YMC Glass columns

1. Inner diameter (mm): _____
2. Minimum bed length (mm): _____
3. Maximum bed length (mm): _____
4. Bed volume (mL): _____
5. Maximum pressure (bar): _____
6. Biocompatibility: yes ☐ no ☐
7. Packing material: _____
8. Particle size of packing material: _____
9. Solvents: _____
10. Heating/cooling jacket: yes ☐ no ☐
11. Quotation for packing adapter required: yes ☐ no ☐
12. Regulatory requirements: _____



Your local distributor:



YMC Europe GmbH

Schöttmannshof 19
D-46539 Dinslaken
Germany
Phone +49(0)2064/427-0, FAX +49(0)2064/427-222
www.ymc.de

YMC Schweiz GmbH

Im Wasenboden 8
4056 Basel
Switzerland
Phone + 41 61 561 80 50, Fax + 41 61 561 80 59
www.ymc-schweiz.ch

YMC CO., LTD.

YMC Karasuma-Gojo Bld. 284 Daigo-cho,
Karasuma Nishiiru Gojo-dori Shimogyo-ku,
Kyoto 600-8106 Japan
Phone +81(0)75-342-4515, FAX +81(0)75-342-4550
www.ymc.co.jp