

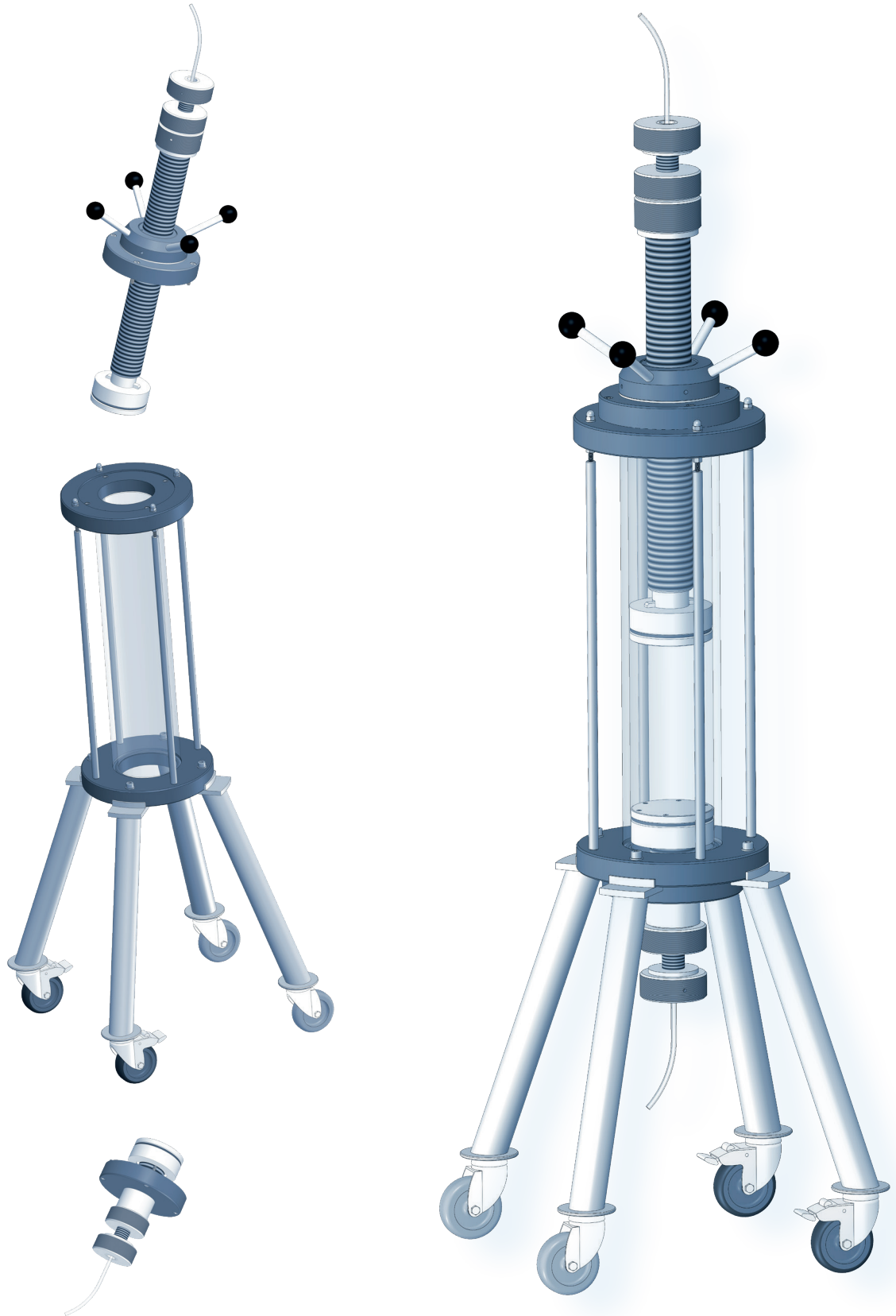
YMC Pilot

The Flexible Line
For Pilot Scale Applications



Full Flexibility
Easy Operation
Reliable Design

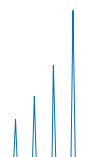




Contents

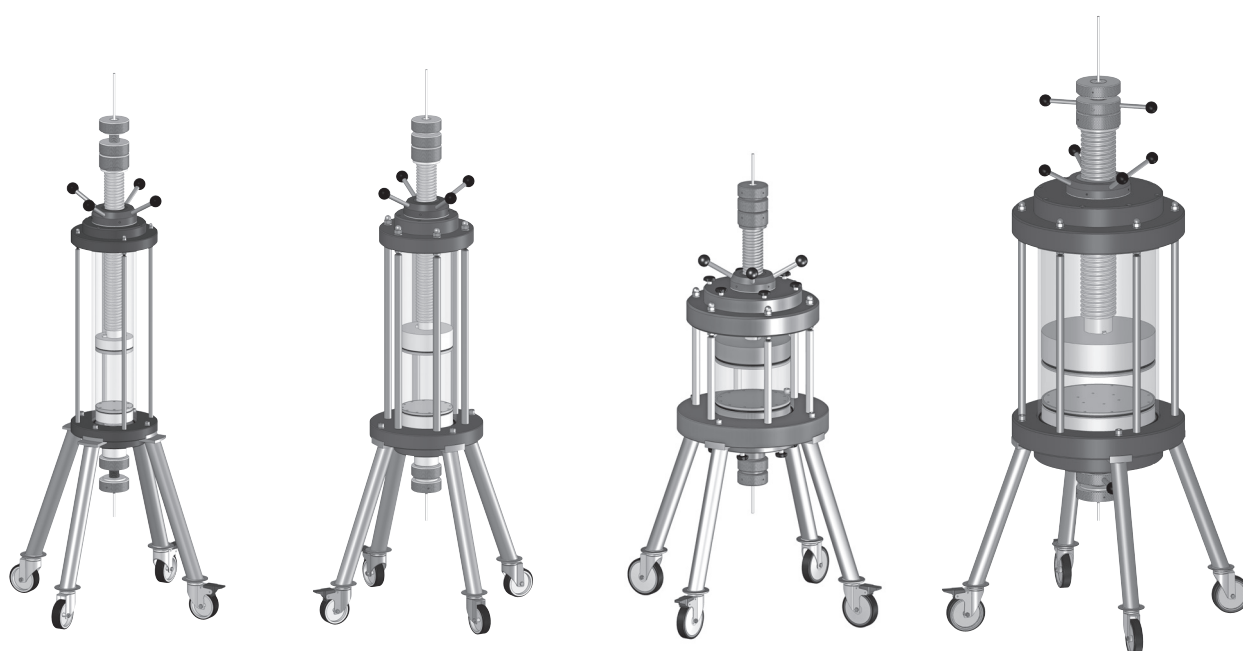
page

Product Range	4
YMC Pilot – The Flexible Line	5
YMC Pilot – Your Benefits	6
Full Resin Compatibility	7
Chemical Resistance	8
Perfect Match for Your Applications	9
Easy Operation and Column Packing	10
Technical Information 100 mm ID	11
Technical Information 140 mm ID	12
Technical Information 200 mm ID	13
Technical Information 300 mm ID	14
Ordering Guide	15–16
Training and Seminars	17
Also of Interest	18
Questionnaire	19



Product Range

Inner Diameter [mm]	100, 140, 200, 300
Length Glass Body [mm]	500, 850
Temperature Range [°C]	4–40



Wetted Parts

Version	Wetted Parts
AB version (aqueous buffer)	Borosilicate glass 3.3. PVDF, PTFE, EPDM, PE, FEP, PEEK
SR version (solvent resistant)	Borosilicate glass 3.3. PTFE, stainless steel, Kalrez®, FEP

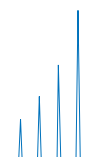
YMC Pilot – The Flexible Line

The YMC Pilot column range offers full flexibility for your pilot scale applications. In addition to four standard inner diameters and two standard lengths, customisation can be realised based on the requirements of your application.

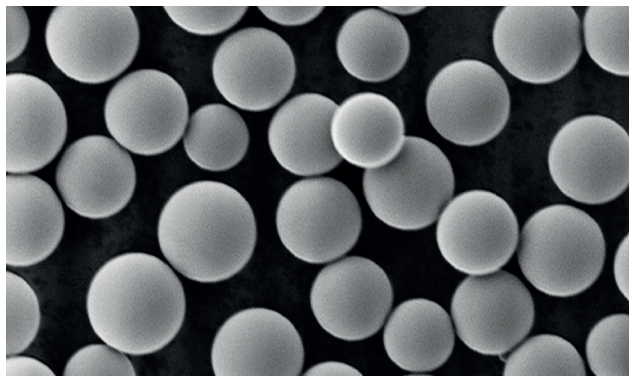


The columns are characterised by a number of significant advantages:

- Two versions available for full biocompatibility or organic solvent resistance.
- Heating/cooling jackets available as an option for temperature sensitive applications.
- Longer bed length range for SEC applications.

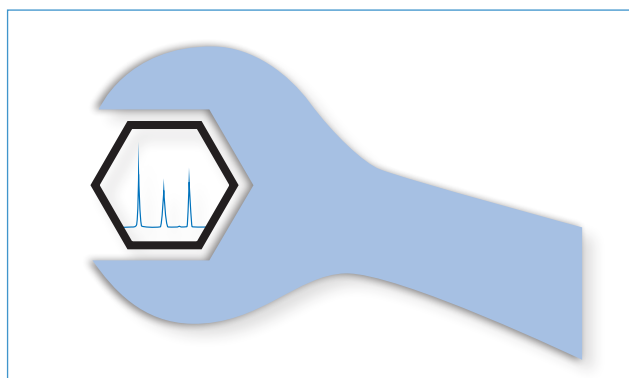


YMC Pilot – Your Benefits



Full Resin Compatibility

- Organic solvent resistant version (SR)
- Biocompatible aqueous buffer version (AB)
- Longer bed length range for SEC



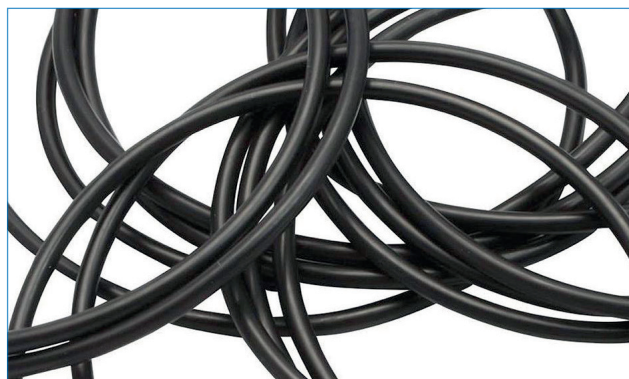
Perfect Match for Your Application

- Customisation possible
- High cost-efficiency
- Design allows easy maintenance



Easy Operation

- Optimum flow distribution
- Excellent packing results
- Packing adapters available



Reliable Sealing

- Squeezed O-ring
- Fast replacement
- Easy piston adjustment

Full Resin Compatibility

YMC Pilot columns are designed for use in pilot and production scale applications with aqueous buffers (AB version) or organic solvents (SR version), which makes them applicable for all common applications in liquid chromatography including normal phase, reversed phase or BioLC.

Mode Compatibility

Version	Suitable YMC Pilot Column Version*
IEX	AB Version
SEC	AB Version
HIC	AB Version
Affinity	AB Version
MMC	AB Version
RP	SR Version
NP	SR Version

*Before selecting the right column version for your application, check the compatibility of the column with the used solvents.



Chemical Resistance

Solvent	AB Version Wetted parts: Borosilicate glass 3.3, PVDF, PTFE, EPDM, PE, FEP, PEEK	SR Version Wetted parts: Borosilicate glass 3.3, PTFE, FEP, stainless steel, Kalrez®
Acetone	Not resistant	Resistant
Acetonitrile	Limited resistant	Resistant
Ammonium dihydrogen phosphate	Resistant	Limited resistant
Cyclohexane	Not resistant	Resistant
Dichloromethane	Not resistant	Resistant
0.1 M EDTA (3%)	Resistant	Resistant
1 M Acetic acid (6%)	Resistant	Limited resistant
Ethanol	Resistant	Resistant
Ethyl acetate	Limited resistant	Resistant
n-hexane	Not resistant	Resistant
Isopropanol	Resistant	Resistant
Methanol	Resistant	Resistant
2 M NaOH (8%)	Resistant	Limited resistant
1 M HCl (4%)	Resistant	Not resistant
8 M Urea (36%)	Resistant	Resistant
1 M NaCl	Resistant	Limited resistant
0.5 M Na ₂ SO ₄	Resistant	Limited resistant

Not resistant

Limited resistant

Resistant

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

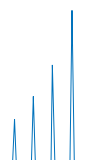
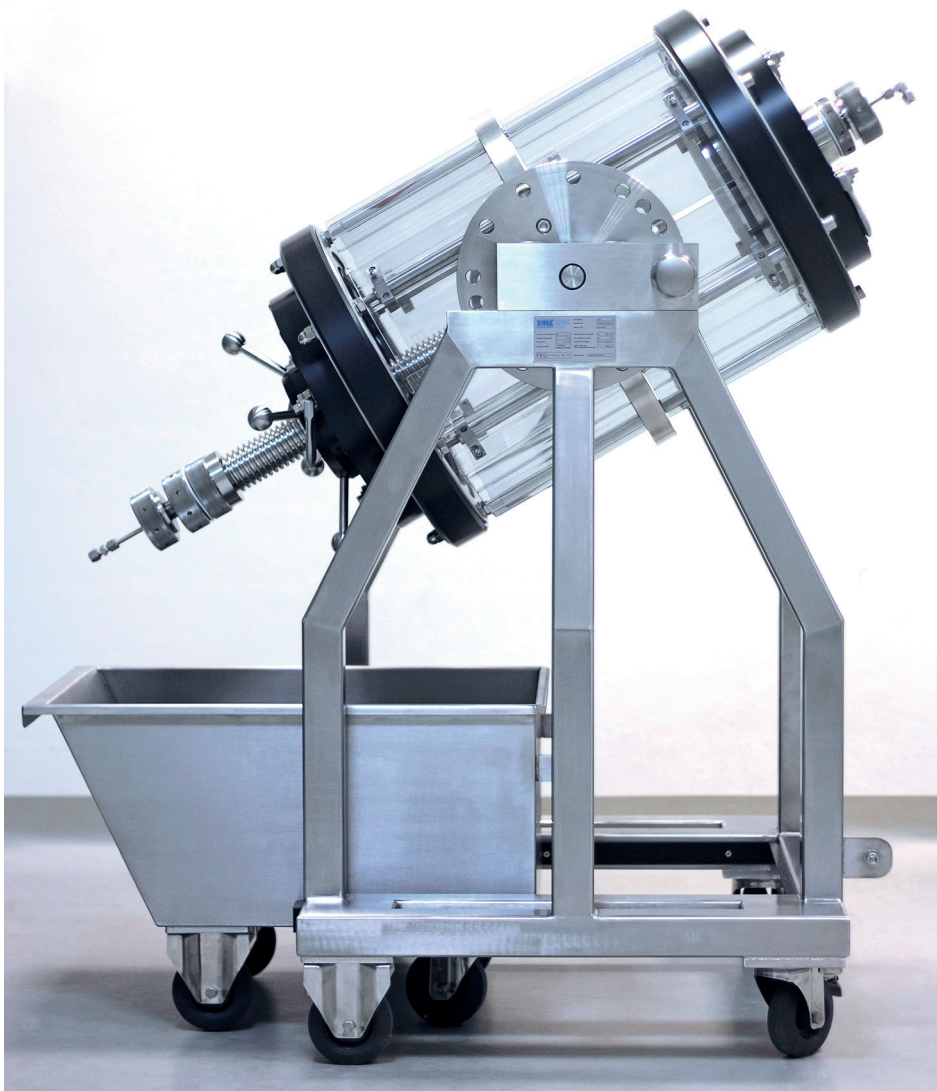
Note: The resistance of the standard versions is based on the resistance of the each wetted part. If one part is limited or not resistant, the whole column is marked with this characteristic as it is the critical part thereof.

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.

Perfect Match for Your Application

Customise your YMC Pilot column until it is the perfect match for your application:

- Inner diameter: Columns with IDs between 60 and 450 mm ID
- Column body: Select the appropriate length for your application and the correct material – borosilicate glass 3.3 or acrylic glass
- Chemical resistance: There is a large number of different material combinations for full resistance
- Regulatory support: Certification and full documentation – BSE/TSE, FDA – are available for validation purposes
- Column stand: For easy unpacking, rotatable racks are available for larger IDs
- Temperature sensitive applications: Heating/cooling jacket available upon request
- Explosion proof area: Electric conductive ATEX versions can be designed

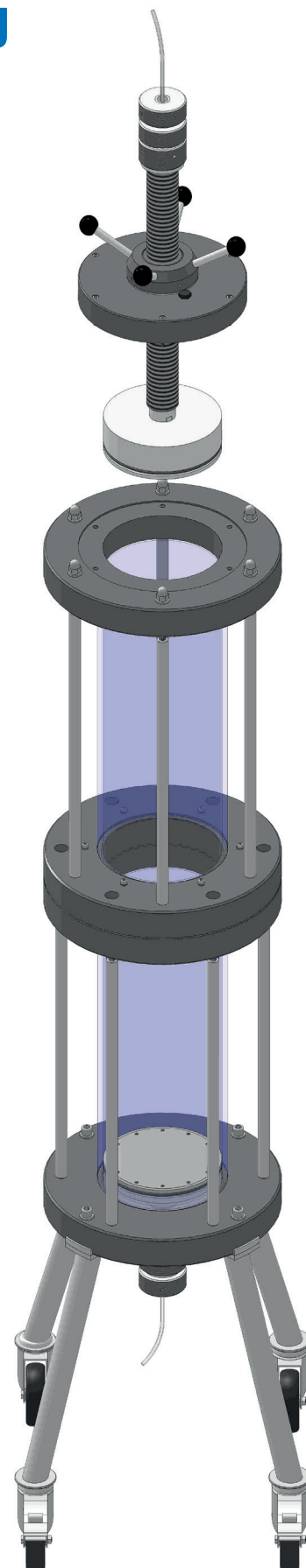


Easy Operation and Column Packing

YMC Pilot columns are designed with a flow distribution plate and a frit made of fully porous materials, which are securely fixed in the piston. Due to the optimum flow distribution, excellent chromatographic results can be achieved.

Furthermore, the column bed is compressed homogeneously during column packing. This way, an optimum packing quality is guaranteed.

If longer bed lengths need to be packed and additional column volume is required during the consolidation step, packing adapters are available which can be easily attached to the column.



Technical Information: 100 mm ID



AB Version

	Length Glass Body	
	500 mm	850 mm
Bed Length [mm]	70–420 ¹	420–770 ¹
Column Volume [L]	0.6–3.2	3.3–6.0
Pressure Limit [bar]	10	10
Temperature Range [°C]	4–40	4–40
Total Weight [kg]	19	23
Weight Adjustable End Piece [kg]	4	4
Weight Fixed End Piece [kg]	2	2
Footprint [mm]	450x420	450x420
Maximum Column Height [mm]	1750	2100

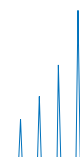
¹depending on packing material and packing method



SR Version

	Length Glass Body	
	500 mm	850 mm
Bed Length [mm]	20–430 ¹	310 - 780 ¹
Column Volume [L]	0.2–3.3	2.5–6.1
Pressure Limit [bar]	10	10
Temperature Range [°C]	4–40	4–40
Total Weight [kg]	27	31
Weight Adjustable End Piece [kg]	9	9
Weight Fixed End Piece [kg]	5	5
Footprint [mm]	450x420	450x420
Maximum Column Height [mm]	1770	2120

¹depending on packing material and packing method



Technical Information: 140 mm ID



AB Version

	Length Glass Body	
	500 mm	850 mm
Bed Length [mm]	70–410 ¹	420–760 ¹
Column Volume [L]	1.1–6.3	6.5–11.6
Pressure Limit [bar]	7	7
Temperature Range [°C]	4–40	4–40
Total Weight [kg]	34	42
Weight Adjustable End Piece [kg]	6	6
Weight Fixed End Piece [kg]	4	4
Footprint [mm]	480x440	480x440
Maximum Column Height [mm]	1750	2100

¹depending on packing material and packing method



SR Version

	Length Glass Body	
	500 mm	850 mm
Bed Length [mm]	20–440 ¹	330–790 ¹
Column Volume [L]	0.4–6.7	5.1–12.1
Pressure Limit [bar]	7	7
Temperature Range [°C]	4–40	4–40
Total Weight [kg]	42	51
Weight Adjustable End Piece [kg]	11	11
Weight Fixed End Piece [kg]	7	7
Footprint [mm]	480x440	480x440
Maximum Column Height [mm]	1780	2130

¹depending on packing material and packing method

Technical Information: 200 mm ID



AB Version

	Length Glass Body	
	500 mm	850 mm
Bed Length [mm]	90–430 ¹	440–780 ¹
Column Volume [L]	2.9–13.5	13.9–25.5
Pressure Limit [bar]	5	5
Temperature Range [°C]	4–40	4–40
Total Weight [kg]	49	59
Weight Adjustable End Piece [kg]	9	9
Weight Fixed End Piece [kg]	6	6
Footprint [mm]	600x500	600x500
Maximum Column Height [mm]	1800	2150

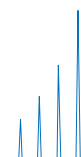
¹depending on packing material and packing method



SR Version

	Length Glass Body	
	500 mm	850 mm
Bed Length [mm]	20–460 ¹	360–810 ¹
Column Volume [L]	0.7–14.4	11.4–25.4
Pressure Limit [bar]	5	5
Temperature Range [°C]	4–40	4–40
Total Weight [kg]	67	77
Weight Adjustable End Piece [kg]	19	19
Weight Fixed End Piece [kg]	15	15
Footprint [mm]	600x500	600x500
Maximum Column Height [mm]	1830	2180

¹depending on packing material and packing method



Technical Information: 300 mm ID



AB Version

	Length Glass Body	
	500 mm	850 mm
Bed Length [mm]	20–390 ¹	330–740 ¹
Column Volume [L]	1.4–26.6	22.8–50.7
Pressure Limit [bar]	3	3
Temperature Range [°C]	4–40	4–40
Total Weight [kg]	83	96
Weight Adjustable End Piece [kg]	25	25
Weight Fixed End Piece [kg]	18	18
Footprint [mm]	650x550	650x550
Maximum Column Height [mm]	1920	2270

¹depending on packing material and packing method



SR Version

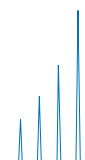
	Length Glass Body	
	500 mm	850 mm
Bed Length [mm]	80–450 ¹	430–800 ¹
Column Volume [L]	5.6–30.8	29.7–54.8
Pressure Limit [bar]	3	3
Temperature Range [°C]	4–40	4–40
Total Weight [kg]	126	139
Weight Adjustable End Piece [kg]	48	48
Weight Fixed End Piece [kg]	38	38
Footprint [mm]	650x550	650x550
Maximum Column Height [mm]	1830	2180

¹depending on packing material and packing method

Ordering Guide Column

Column (Column body with stand, adjustable end piece and fixed end piece)

Product Code	Description
PI100/500V0E-AB	Inner diameter: 100 mm Column Body Length: 500 mm Frit porosity: 10 µm Version: AB
PI100/850V0E-AB	Inner diameter: 100 mm Column Body Length: 850 mm Frit porosity: 10 µm Version: AB
PI140/500V0E-AB	Inner diameter: 140 mm Column Body Length: 500 mm Frit porosity: 10 µm Version: AB
PI140/850V0E-AB	Inner diameter: 140 mm Column Body Length: 850 mm Frit porosity: 10 µm Version: AB
PI200/500V0E-AB	Inner diameter: 200 mm Column Body Length: 500 mm Frit porosity: 10 µm Version: AB
PI200/850V0E-AB	Inner diameter: 200 mm Column Body Length: 850 mm Frit porosity: 10 µm Version: AB
PI300/500V0E-AB	Inner diameter: 300 mm Column Body Length: 500 mm Frit porosity: 10 µm Version: AB
PI300/850V0E-AB	Inner diameter: 300 mm Column Body Length: 850 mm Frit porosity: 10 µm Version: AB



Ordering Guide Column

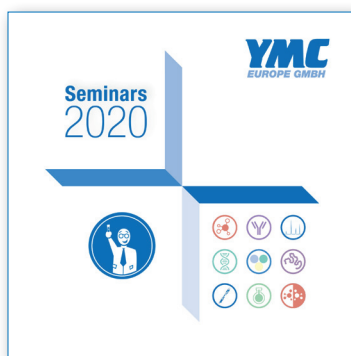
Column (Column body with stand, adjustable end piece and fixed end piece)

Product Code	Description
PI100/500V0K-SR	Inner diameter: 100 mm Column Body Length: 500 mm Frit porosity: 10 µm Version: SR
PI100/850V0K-SR	Inner diameter: 100 mm Column Body Length: 850 mm Frit porosity: 10 µm Version: SR
PI140/500V0K-SR	Inner diameter: 140 mm Column Body Length: 500 mm Frit porosity: 10 µm Version: SR
PI140/850V0K-SR	Inner diameter: 140 mm Column Body Length: 850 mm Frit porosity: 10 µm Version: SR
PI200/500V0K-SR	Inner diameter: 200 mm Column Body Length: 500 mm Frit porosity: 10 µm Version: SR
PI200/850V0K-SR	Inner diameter: 200 mm Column Body Length: 850 mm Frit porosity: 10 µm Version: SR
PI300/500V0K-SR	Inner diameter: 300 mm Column Body Length: 500 mm Frit porosity: 10 µm Version: SR
PI300/850V0K-SR	Inner diameter: 300 mm Column Body Length: 850 mm Frit porosity: 10 µm Version: SR

Training and Seminars

Glass Column Packing – Laboratory Scale and Pilot Columns

This training will enable you to pack laboratory and process scale columns – using theory as well as practical experience. Different packing methods and procedures for preparing the packing process will be discussed. In the hands-on part of the training, you will pack a column yourself in our application laboratory. Helpful tips for troubleshooting and method optimisation will complement the seminar.



Contents and Learning Objectives

- How to achieve your packed column – packing methods you can use
- Basics of preparation
- Hands-on experience – all steps you require for packing your column
- How you determine column efficiency
- Troubleshooting – what you can learn from column performance evaluation results

Target group

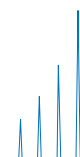
Glass column users with alternative qualifications
(laboratory assistants, technicians, engineers, chemists)

You can find actual dates for seminars in our seminar flyer
at www.ymc.de or you can contact us directly:

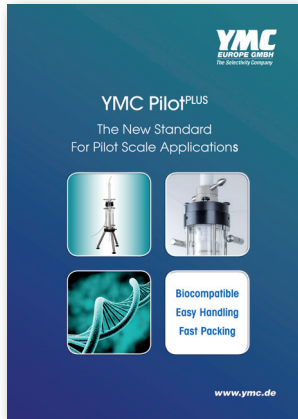
Phone: +49 2064 427-0

Fax: +49 2064 427-222

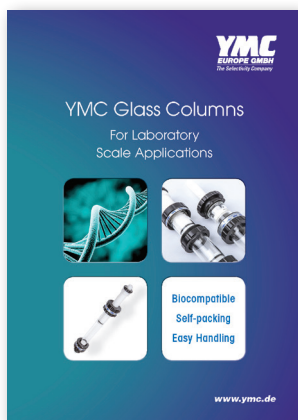
Email: info@ymc.de



Please inquire for the corresponding catalogues

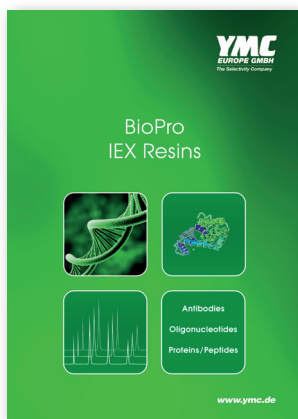


YMC Pilot^{PLUS} is the new standard for your pilot scale applications. It is completely biocompatible and characterised by safe and easy handling. Packing, operating and unpacking the column is a smooth procedure due to a number of significant advantages.



ECO columns are glass columns for use with almost all types of soft gels and medium pressure liquid chromatography applications.

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.



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.

For help in selecting your laboratory or pilot scale 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: _____

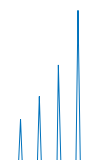
8. Particle size of packing material: _____

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(0)61 561 80 50, Fax +41(0)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