

# YMC Pilot<sup>PLUS</sup>

The New Standard  
For Pilot Scale Applications



**Biocompatible**  
**Easy Handling**  
**Fast Packing**

Adjustable Endpiece



Column Body

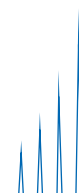


Column Stand



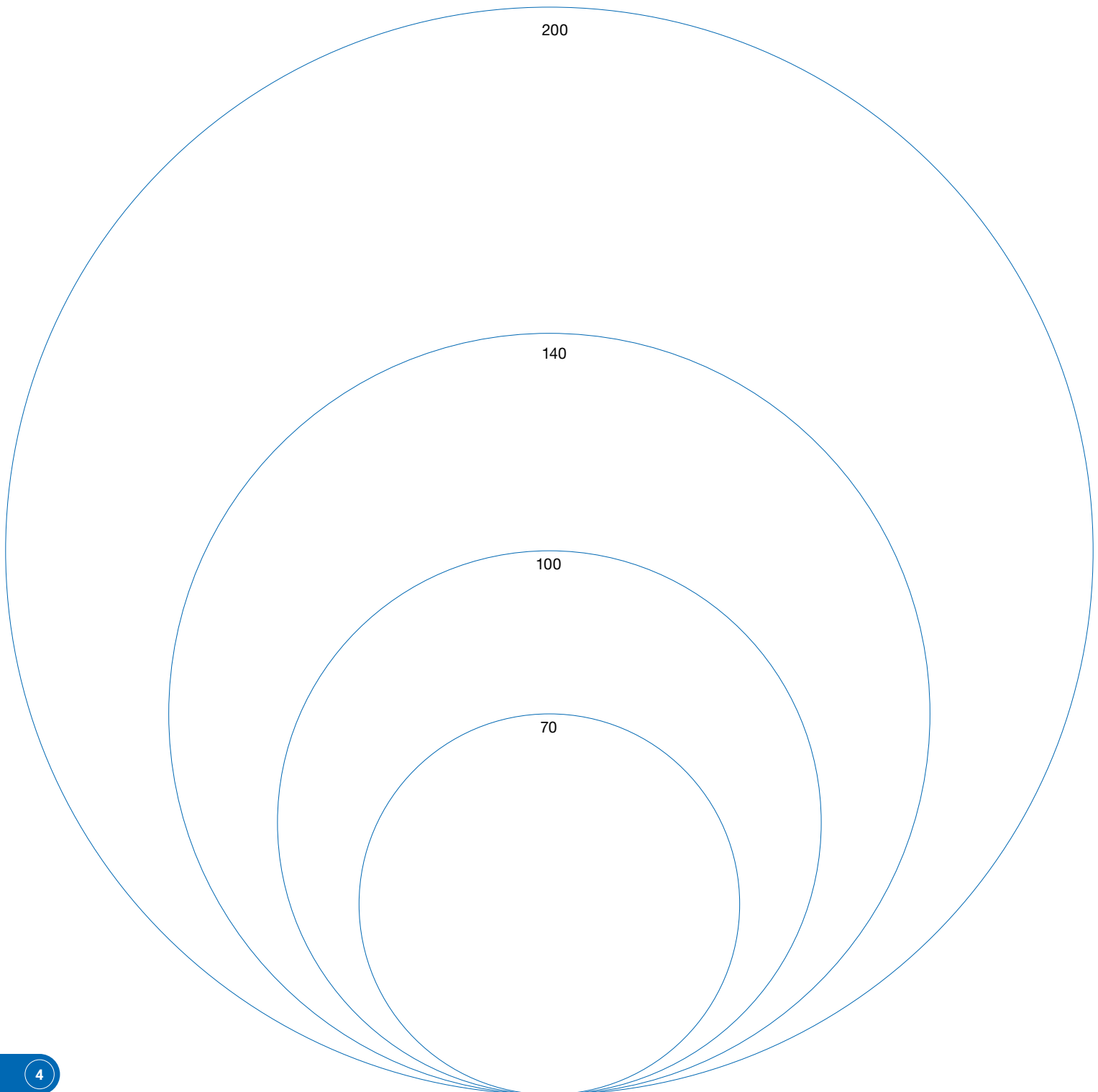
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# Product Range

<b>Inner Diameter [mm]</b>	70, 100, 140, 200
<b>Length Glass Body [mm]</b>	500, 850
<b>Temperature Range [°C]</b>	4–40



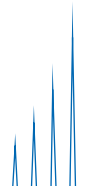
# YMC Pilot<sup>PLUS</sup> – The New Standard

**YMC Pilot<sup>PLUS</sup>** 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.



- The unique sealing principle provides permanent sealing and extremely small dead areas.
- The innovative drain function makes piston assembly fast and clean.
- Due to the removable column body, unpacking and cleaning of the column is easily performed.



## YMC Pilot<sup>PLUS</sup> – Your Benefits



### Safe and Easy Handling

- Piston insertion without air bubbles
- Safe and simple unpacking
- Fast slurry transfer



### Easy Piston Adjustment

- Inclined glass body surface
- Easily sliding gasket
- Optimised flow distribution



### Unique Sealing Principle

- Extremely small dead areas
- Tool-free frit removal
- Combined sealing and frit fixation



### Removable Column Body

- Locking bolts for fast removal
- Handles for simplified transportation
- Easy unpacking in upside-down position

## Safe and Easy Handling

Pilot columns are most frequently packed by means of slurry packing methods. In this case, where the gel is suspended in the eluent, it is very important to initiate the packing process as quickly as possible. Therefore, the following steps need to be performed without delays.

1. **The gel needs to be transferred quickly into the column body without introduction of air.**
2. **The piston needs to be inserted without delay, as the packing pressure needs to be applied as soon as possible.**

But column packing procedures face hurdles. During the slurry filling introduction of excessive air bubbles needs to be avoided. Therefore, filling has to be done carefully and slowly, but with minimum delay. Most pilot columns do not include a handy device for slurry transfer making filling time consuming and bead sedimentation difficult to avoid.

## Fast Slurry Transfer

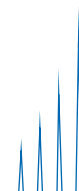
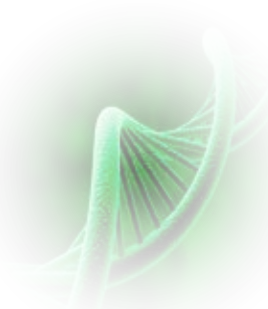
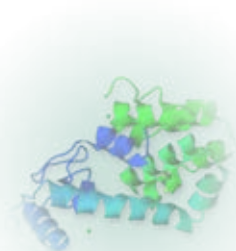
**Rapid, bubble-free slurry transfer with the handy infilling assistance tool!**

The infilling assistance is available in all column IDs for perfect fit.



With no metal present, YMC Pilot<sup>PLUS</sup> is the perfect match for BioLC applications.

Biomolecules such as peptides, proteins, antibodies and oligonucleotides have complex 3D structures, which can be distorted by metal ions.



## The Innovative Drain Function for Bubble-Free Piston Insertion

Most pilot columns require insertion of the piston vertical to the column, which causes trapped air between the frit and solvent surface. This air needs to be removed before the packing process can continue resulting in uncontrolled sedimentation progresses. A thick gel layer at the column base and a lower density in the upper column body appear. This leads to a non-homogenous columnbed which results in a lower performance.

Consequently, the overall process costs increase due to inferior chromatographic results; or even worse in consecutive packing steps with respective loss of precious time.

Through an inclined surface at the glass body and the drain function, the piston can easily be inserted into the eluent. Excessive solvent easily flows off through the drain function.



***Bubble-free piston insertion due to the smart drain function – smooth packing process, guaranteeing a well packed column for great chromatographic performance!***



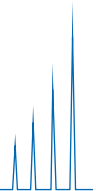
## Easy Piston Adjustment



When the piston is inserted, the gasket seals permanently. This way, dead volumes are reduced to a minimum! Due to the unique construction, the gasket slides easily up and down the column.



Instructions on the piston clearly indicate how to adjust the piston.





## Unique Sealing Principle

The unique sealing principle combines sealing and frit fixation. This makes the frit and gasket removal very easy and tool-free! This is important as these two spare parts need to be inspected every time the column is packed.

Due to the special frit construction, the flow path is optimised and the sample is distributed evenly on the column bed. That provides improved chromatographic results.



*The piston fixation is done with star screws – no tools are required!*

## Removable Column Body

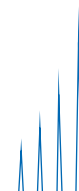
The key for fast unpacking is the removable YMC Pilot<sup>PLUS</sup> column body. It can be swiftly unlocked using the three locking bolts.

Turned into upside-down position, the unpacking step is clean and quickly performed.



## Reliable Column Locking

The removable column body is tightened and un-tightened using the three handy locking bolts.





**Every column is equipped with 4 handles for:**

- safe transportation
- easy lifting of column body out of the column stand
- simple unpacking in upside-down position
- safe movement with a wheeled version column stand



**The column stand is available in two versions:**

1. Levelled version for in-process operation
2. Wheeled version for transportation and storage



## Technical Information: 70 mm ID

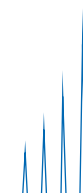
	Length Glass Body	
	500 mm	850 mm
Bed Length [mm]	100–450 <sup>1</sup>	250–800 <sup>1</sup>
Column Volume [L]	0.4–1.7	1.0–3.0
Pressure Limit [bar]	16	16
Temperature Range [°C]	4–40	4–40
Total Weight [kg]	19	23
Weight Adjustable End Piece [kg]	3.2	3.7
Footprint [mm]	620	620
Maximum Column Height [mm]	1,700	2,250

<sup>1</sup>depending on packing material and packing method

### Compatible LC modes:

RP, NP (organic solvent resistance on request)

IEX, SEC, Affinity, HIC, IMAC, MMC





## Technical Information: 100 mm ID

	Length Glass Body	
	500 mm	850 mm
Bed Length [mm]	100–450 <sup>1</sup>	250–800 <sup>1</sup>
Column Volume [L]	0.8–3.5	2.0–6.2
Pressure Limit [bar]	10	10
Temperature Range [°C]	4–40	4–40
Total Weight [kg]	20	24
Weight Adjustable End Piece [kg]	3.5	4.0
Footprint [mm]	620	620
Maximum Column Height [mm]	1,700	2,250

<sup>1</sup>depending on packing material and packing method

### Compatible LC modes:

RP, NP (organic solvent resistance on request)

IEX, SEC, Affinity, HIC, IMAC, MMC



## Technical Information: 140 mm ID

	Length Glass Body	
	500 mm	850 mm
Bed Length [mm]	100–450 <sup>1</sup>	250–800 <sup>1</sup>
Column Volume [L]	1.5–6.9	3.8–12.3
Pressure Limit [bar]	7	7
Temperature Range [°C]	4–40	4–40
Total Weight [kg]	37	45
Weight Adjustable End Piece [kg]	7.3	7.8
Footprint [mm]	750	750
Maximum Column Height [mm]	1,750	2,300

<sup>1</sup>depending on packing material and packing method

### Compatible LC modes:

RP, NP (organic solvent resistance on request)

IEX, SEC, Affinity, HIC, IMAC, MMC





## Technical Information: 200 mm ID

	Length Glass Body	
	500 mm	850 mm
Bed Length [mm]	100–450 <sup>1</sup>	250–800 <sup>1</sup>
Column Volume [L]	3.1–14.1	7.8–25.1
Pressure Limit [bar]	5	5
Temperature Range [°C]	4–40	4–40
Total Weight [kg]	38	47
Weight Adjustable End Piece [kg]	8.0	8.6
Footprint [mm]	750	750
Maximum Column Height [mm]	1,750	2,300

<sup>1</sup>depending on packing material and packing method

### Compatible LC modes:

RP, NP (organic solvent resistance on request)

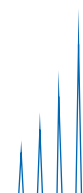
IEX, SEC, Affinity, HIC, IMAC, MMC



## Ordering Guide Column

### Column (Column body and adjustable end piece)

Product Code	Description
<b>PPL70/500PE10</b>	Inner diameter: 70 mm Column Body Length: 500 mm Frits: Polyethylene 10 µm
<b>PPL70/850PE10</b>	Inner diameter: 70 mm Column Body Length: 850 mm Frits: Polyethylene 10 µm
<b>PPL100/500PE10</b>	Inner diameter: 100 mm Column Body Length: 500 mm Frits: Polyethylene 10 µm
<b>PPL100/850PE10</b>	Inner diameter: 100 mm Column Body Length: 850 mm Frits: Polyethylene 10 µm
<b>PPL140/500PE10</b>	Inner diameter: 140 mm Column Body Length: 500 mm Frits: Polyethylene 10 µm
<b>PPL140/850PE10</b>	Inner diameter: 140 mm Column Body Length: 850 mm Frits: Polyethylene 10 µm
<b>PPL200/500PE10</b>	Inner diameter: 200 mm Column Body Length: 500 mm Frits: Polyethylene 10 µm
<b>PPL200/850PE10</b>	Inner diameter: 200 mm Column Body Length: 850 mm Frits: Polyethylene 10 µm



## Ordering Guide Column Stand

Product Code	Description
PPL70-100/StandL	YMC Pilot <sup>PLUS</sup> Column Stand levelled version 70–100 mm ID
PPL70-100/StandW	YMC Pilot <sup>PLUS</sup> Column Stand wheeled version 70–100 mm ID
PPL140-200/StandL	YMC Pilot <sup>PLUS</sup> Column Stand levelled version 140–200 mm ID
PPL140-200/StandW	YMC Pilot <sup>PLUS</sup> Column Stand wheeled version 140–200 mm ID

### Regulatory Support

All wetted parts are in compliance with FDA regulations. Certification and full documentation (BSE/TSE, USP Class VI) are available for validation purposes.



## Chemical Resistance

Solvent	Wetted Parts: Borosilicate glass 3.3, FEP, PE, PTFE, PEEK, 75 Fluoroprene XP41
Acetone	Not resistant
Acetonitrile	Limited resistant
Ammonium dihydrogen phosphate	Resistant
Cyclohexane	Limited resistant
Dichloromethane	Not resistant
0.1 M EDTA (3 %)	Resistant
1 M Acetic acid (6 %)	Resistant
Ethanol	Resistant
Ethyl acetate	Not resistant
n-hexane	Limited resistant
Isopropanol	Resistant
Methanol	Resistant
2 M NaOH (8 %)	Resistant
1 M HCl (4 %)	Resistant
8 M Urea (36 %)	Resistant
1 M NaCl	Resistant
0.5 M Na <sub>2</sub> SO <sub>4</sub>	Resistant

Not resistant

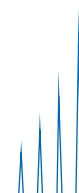
Limited resistant

Resistant

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

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

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 for assistance regarding the chemical resistance.



# Laboratory Services

## Save time and choose a packed column

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

Rely on the experience of YMC and ask for a packed ECO or ECO<sup>PLUS</sup> column. Our knowledge of packing is your benefit!

## Our services include packing of

- **ECO and ECO<sup>PLUS</sup> 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<sup>PLUS</sup> column**  
A second option for purchasing new column hardware is to use the option of our refill service if you already have a ECO or ECO<sup>PLUS</sup> column. This service includes changing of frits and a quality control for the glass columns.
- **Stationary phases from YMC as well as from other suppliers**  
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 supplier.

## How it works:



# 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.

**Glass Column Packing Seminar** YMC EUROPE GERMANY

Learn how to pack laboratory and pilot scale columns - merging theory as well as practice.

**Contents and learning objectives**

- Packing methods - how to achieve optimal packing results
- How you determine column efficiency
- What you can learn from column performance evaluation results
- Hands-on experience - pack your own column

**You decide on the location!**

We will be happy to welcome you to a seminar at our European headquarter in Dinklage (close to Düsseldorf).

- You can't attend a seminar at our site?
- You want a group of your colleagues to benefit from our seminars?
- You request a specific seminar tailored to your needs?

**Of course, you can also book a seminar at your site!**

**Your benefits:**

- Topics and duration according to your specific requirements
- Date and location by choice
- Flexible number of attendees
- Fixed costs

Please contact us for further information and inquiries:

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Head of Laboratories  
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[www.ymc.eu](http://www.ymc.eu)

## 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

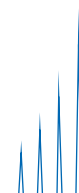
Glass column users with alternative qualifications (laboratory assistants, technicians, engineers, chemists)

You can find actual dates for seminars in our seminar flyer at [www.ymc.eu](http://www.ymc.eu) or you can contact us directly:

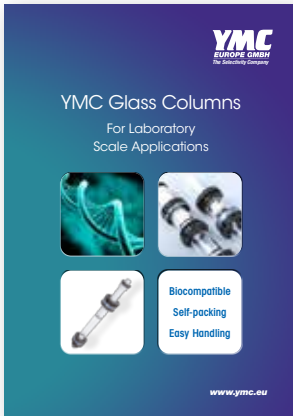
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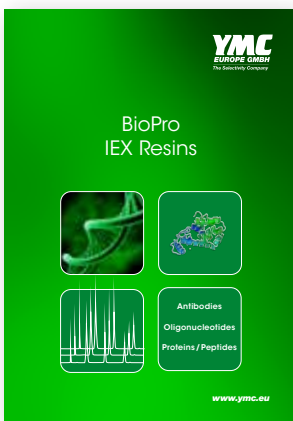
Email: [info@ymc.eu](mailto:info@ymc.eu)



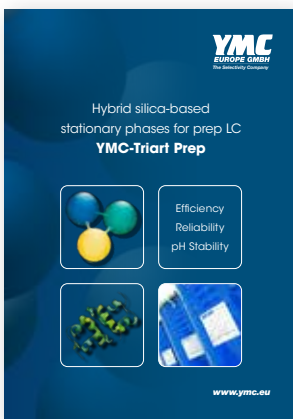
## Please inquire for the corresponding catalogues



YMC Glass Columns For Laboratory Scale Applications  
 ECO and ECO<sup>PLUS</sup> glass columns for laboratory scale applications from 5 mm to 80 mm inner diameter.



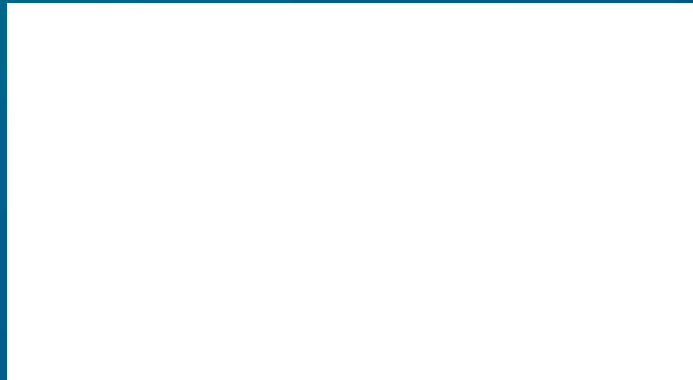
YMC BioPro IEX Resins products are polymeric ion exchange resins for the purification of biological molecules. They represent one part of the three part YMC-Prep portfolio: silica, hybrid silica and polymer media.



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



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