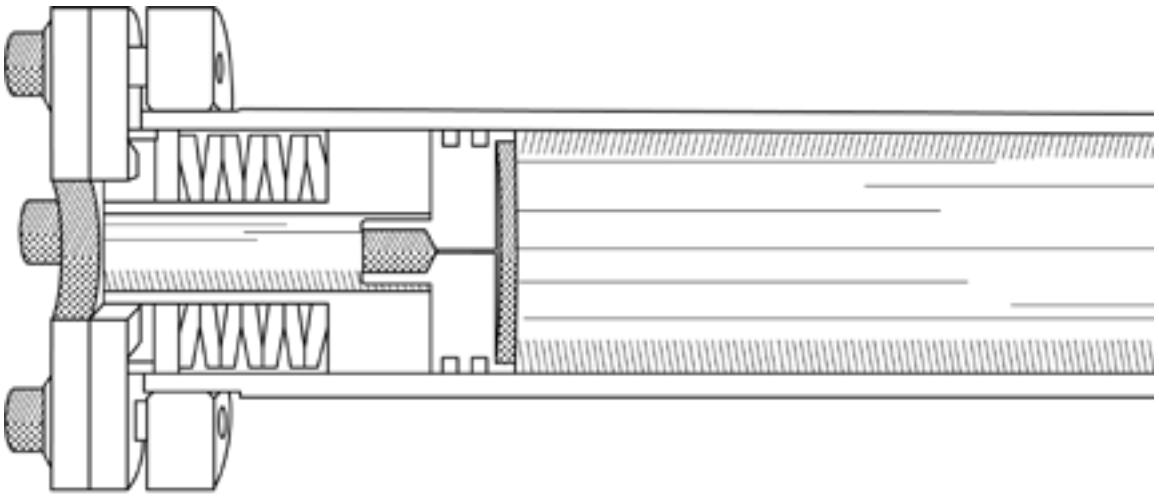
Dr. Maisch

Any Column, Any Size, Any Media

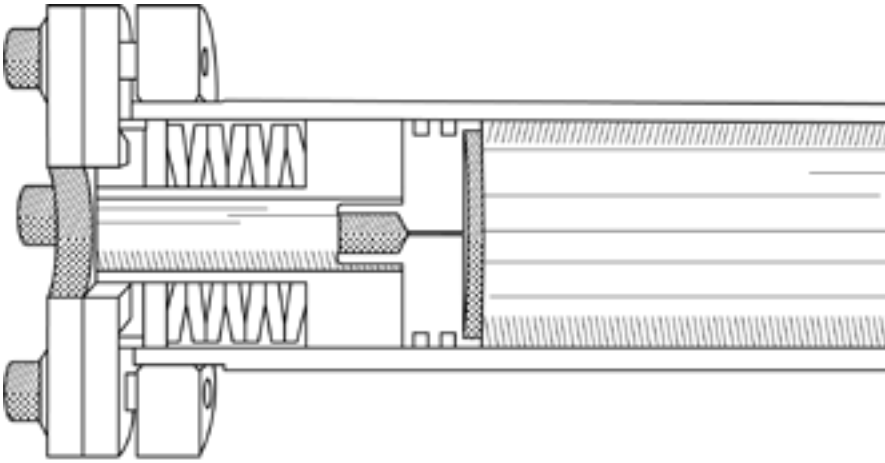


# LONGLIFE

## Preparative scale column hardware

MADE BY DR. MAISCH

# CONTENT



## LONGLIFE
## MADE BY DR. MAISCH

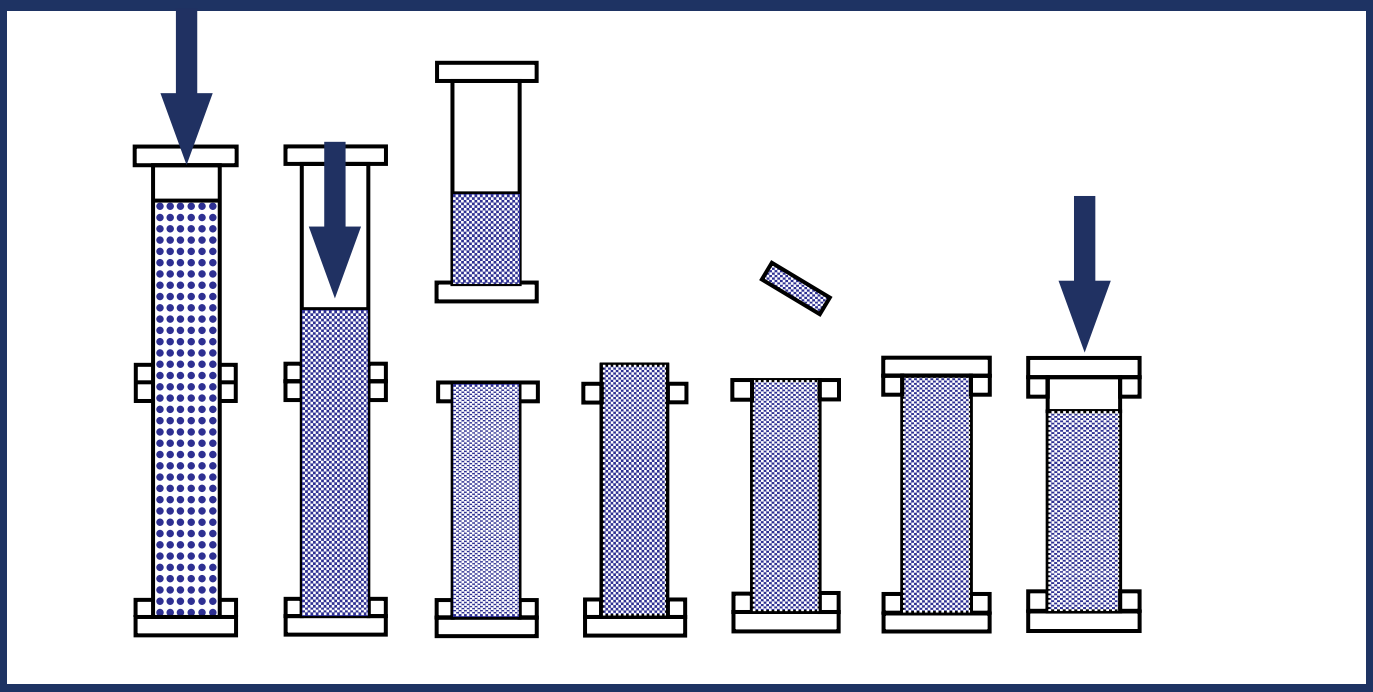
From one of the biggest
**H**igh-**P**erformance **L**iquid **C**hromatography (HPLC) and
**U**ltra **H**igh-**P**erformance **L**iquid **C**hromatography (UHPLC)
Column Manufacturers in Europe.

# COLUMN PACKING TECHNOLOGIES

Fixed bed – packing by solvent flow
Axial compression – packing with a piston

DAC – **D**ynamic **A**xial **C**ompression

SAC – **S**tatic **A**xial **C**ompression



Dilute slurry in column and packing reservoir

Bed compaction by pumping eluent through the column

Removal of packing reservoir, pressure released

Extrusion of stationary phase due to pressure release

Removal of extruded column bed

Closing the column (at ambient Pressure)

Possibility of formation of voids under eluent flow pressure

# INTRINSIC PROBLEMS RELATED TO FIXED BED COLUMN PACKING

SAMPLES

- Need of excess media in packing reservoir

- Further loss of media after release of packing pressure
    - Less loading capacity
    - Lower efficiency

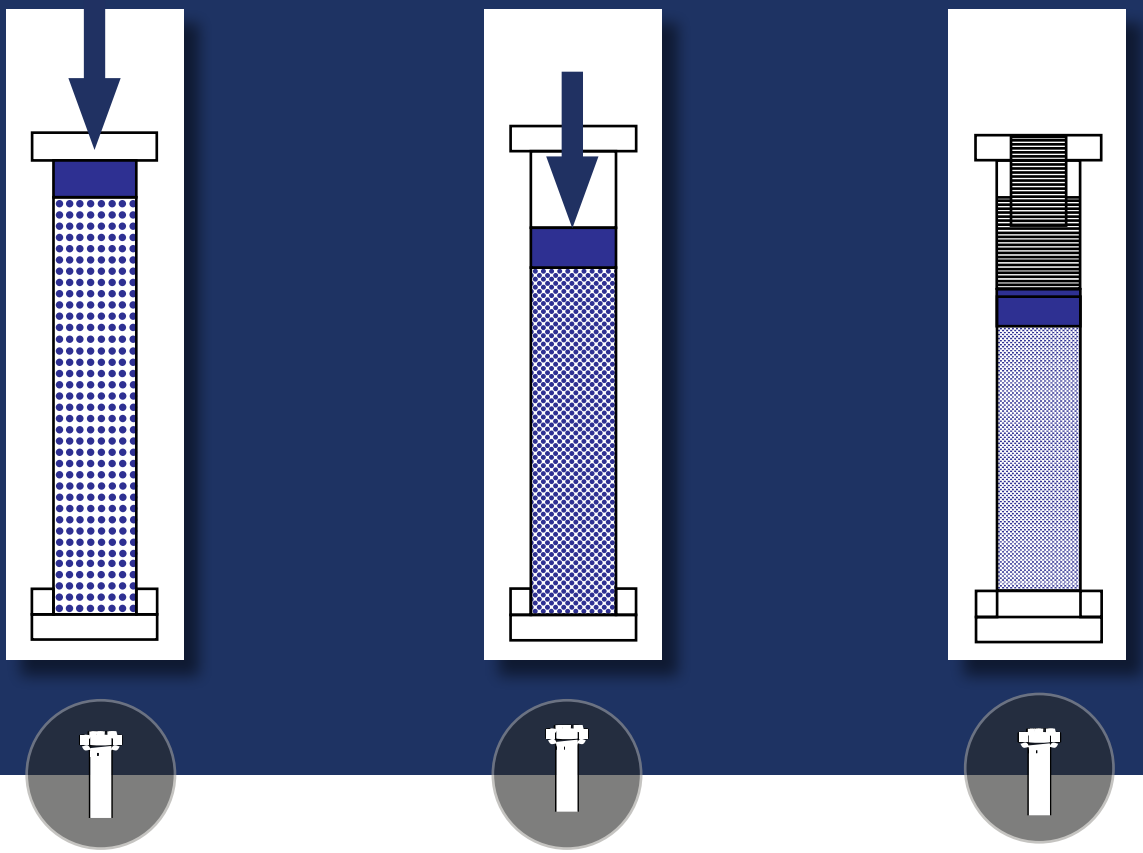
- Possibility of bed disruption upon pressure release

- Non-uniform bed packing density due to pressure drop along the column length under flow pressure packing

- Possibility of formation of voids during use
  limited lifetime

# AXIAL COMPRESSION – PACKING WITH A PISTON

Axial compression overcomes these problems:



**No need of excess media or loss of media**

**Mechanical pressure by the force on the piston:**

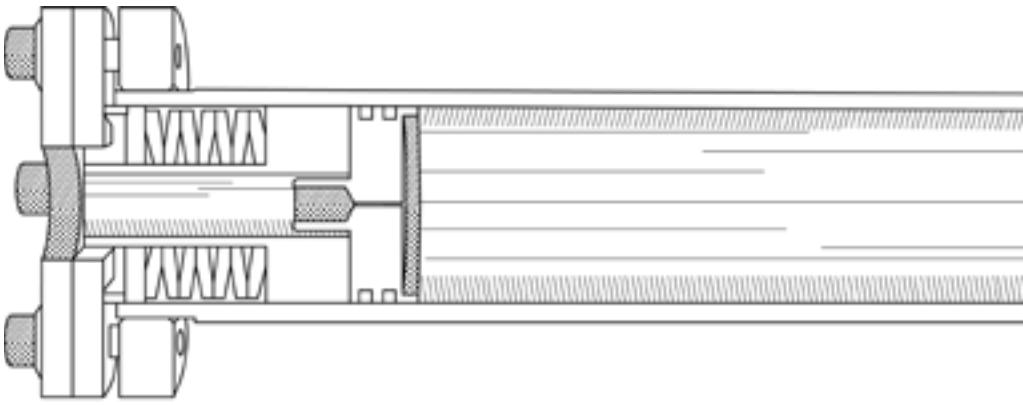
- **Full pressure to the bed over the complete column length ➡ uniform packing density**

**No release of piston pressure:**

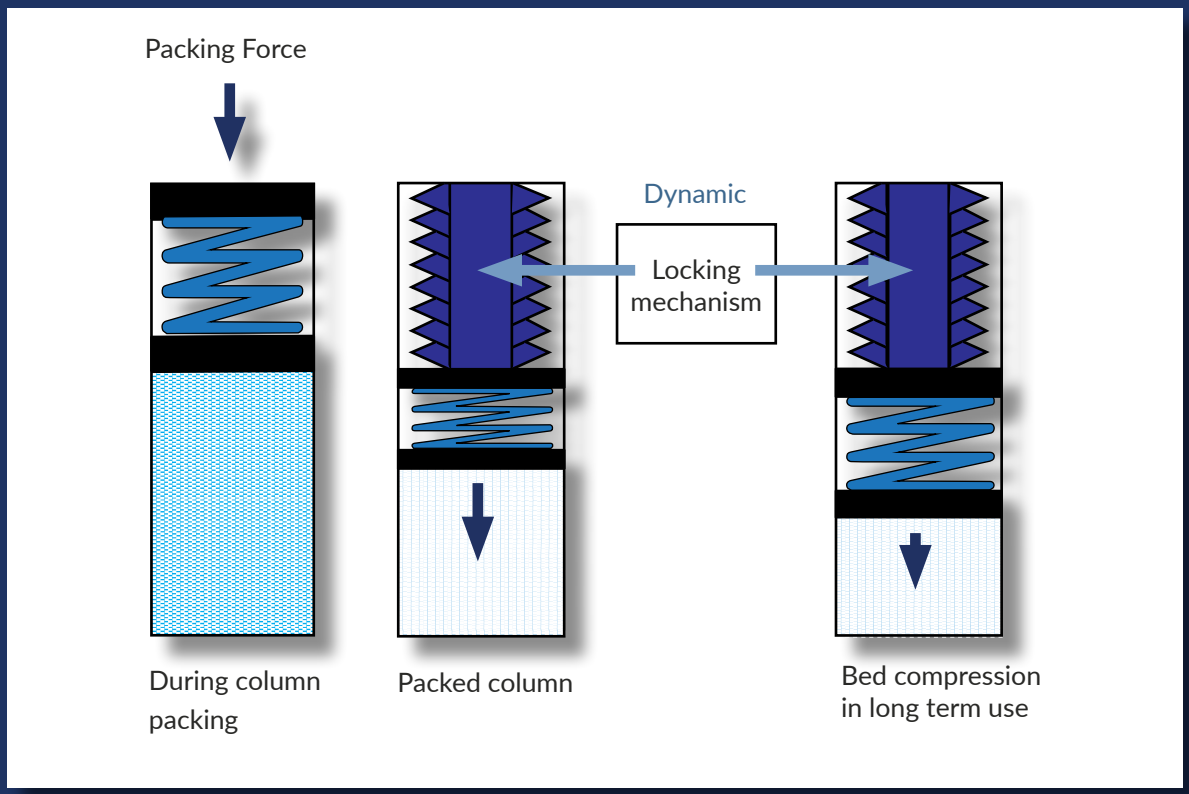
- **No bed disruption**
- **Consistent packing density**
- **No formation of voids**
- **Increased column lifetime**

# LONGLIFE COLUMN HARDWARE

- Patented premium prep hardware
- SAC and DAC version
- Suitable for SFC
- Extremely high performance and lifetime



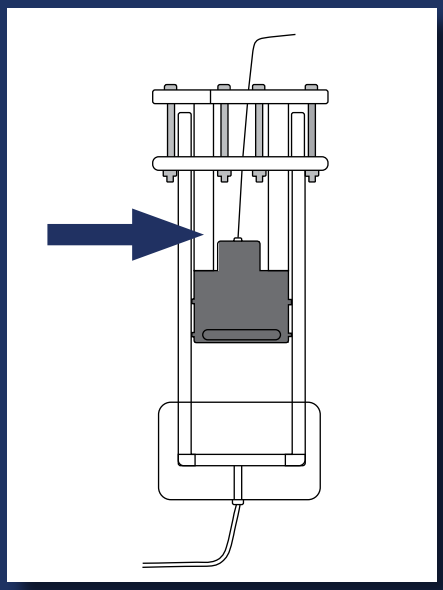
# THE LONGLIFE TECHNOLOGY IS BASED ON THE MODCOL SPRING COLUMN PRINCIPLE

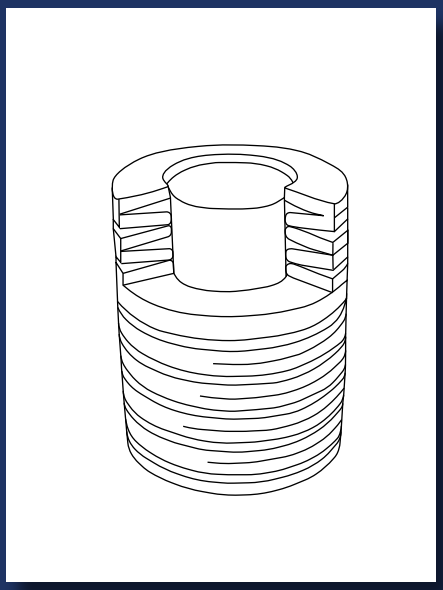



- A column extension (packing reservoir) is used to contain the dilute slurry.
- The packing reservoir is removed after the column has been packed in order to minimise packed column‘s total hardware length.
- The piston stays in the column.
- The pressure is not released.

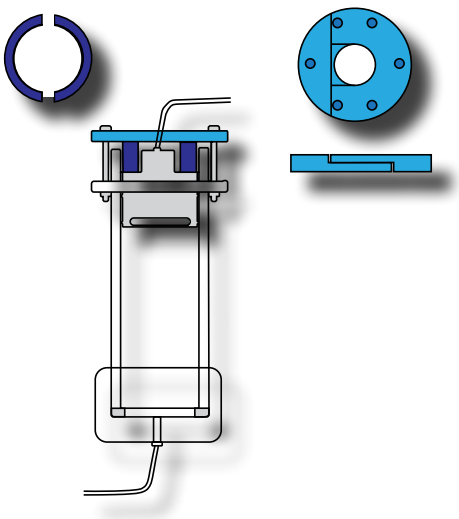
# THE PATENTED LONGLIFE PRINCIPLE

The bed length of the packed column can be controlled by the use halb-tube column inserts





**Instead of static spacers, washer spring units can be inserted for dynamic axial compression mechanism**



Patented special design of column flange endplate that allows to close the column without removing the piston and releasing the packing pressure.

Patent No: DE202018001788
DE202016000500111

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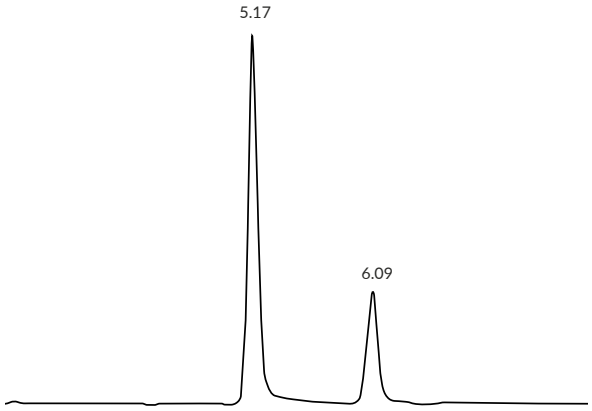
# CHIRAL REPROSIL MEDIA

## ReproSil Chiral-MIA,
**5 µm, 250 mm L x 30 mm ID**




ca. 90,000 N/m

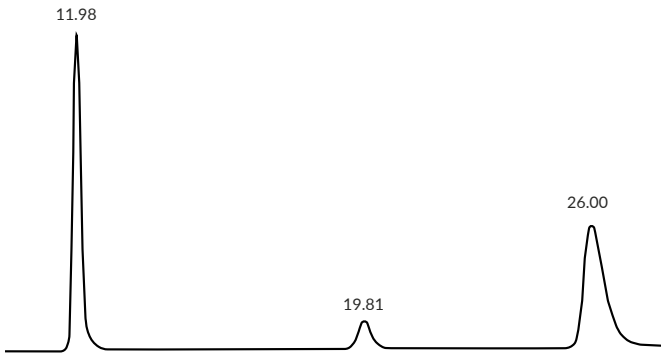
### TEST CONDITIONS

| | |
|---|---|
| Mobile Phase: | Heptan/IPA 85/15 |
| Flow Rate: | 30 ml/min |
| Temperature: | Ambient |
| Pressure: | 34 bar |
| Detector: | UV @ 229 nm |
| Sensitivity: | 0.5 mV |

### Description:

| | |
|---|---|
| Packing Material: | ReproSil Chiral-MIA, 5 µm |
| Length: | 250 mm |
| ID: | 30 mm |
| Shipping Solvent: | Mobile Phase |
| Maximum Pressure: | 130 bar |
| Hardware Type: | Longlife |
| Frit: | 2 µm |
| pH Range: | 2.0 - 8.0 |

## ReproSil Chiral NR,
**8 µm, 260 mm L x 50 mm ID**




ca. 60,000 N/m

### TEST CONDITIONS

| | |
|---|---|
| Mobile Phase: | Heptan/IPA 85/15 |
| Flow Rate: | 60 ml/min |
| Temperature: | Ambient |
| Pressure: | 12 bar |
| Detector: | UV @ 254 nm |
| Sensitivity: | 0.6 mV |

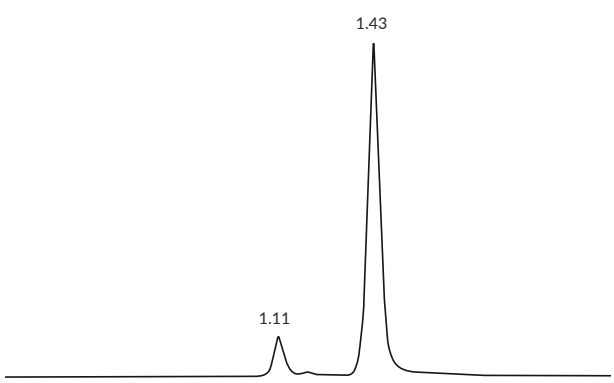
### Description:

| | |
|---|---|
| Packing Material: | ReproSil Chiral-NR, 8 µm |
| Length: | 260 mm |
| ID: | 50 mm |
| Shipping Solvent: | Mobile Phase |
| Maximum Pressure: | 250 bar |
| Hardware Type: | Longlife |
| Frit: | 2 µm |
| pH Range: | 2.0 - 8.0 |

# OTHER MANUFACTURERS MEDIA

## Zorbax SB-AQ,

**5 µm, 70 mm L x 30 mm ID**




ca. 80,000 N/m

### TEST CONDITIONS

| | |
|---|---|
| Mobile Phase: | MeOH/H2O 85/15 |
| Flow Rate: | 30 ml/min |
| Temperature: | Ambient |
| Pressure: | 24 bar |
| Detector: | UV @ 254 nm |
| Sensitivity: | 59.8 mV |

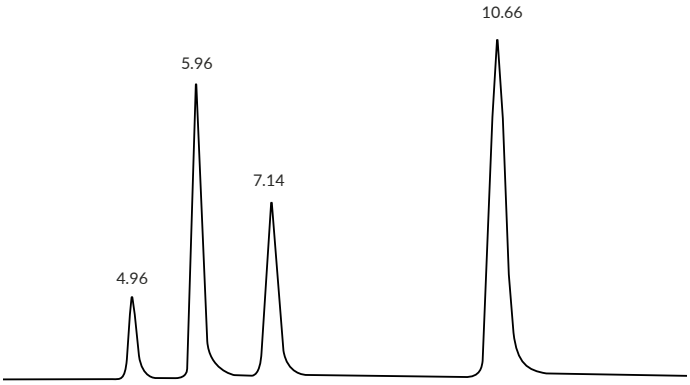
### Description:

| | |
|---|---|
| Packing Material: | Zorbax SB-AQ, 5 µm |
| Length: | 75 mm |
| ID: | 30 mm |
| Shipping Solvent: | Mobile Phase |
| Maximum Pressure: | 210 bar |
| Hardware Type: | Longlife |
| Frit: | 2 µm |
| pH Range: | 2.0 - 8.0 |

Peak 1: Uracil
Peak 2: Toluene

## Luna C18 (3)

**10 µm, prep 250 mm L x 70 mm ID**




ca. 40,000 N/m

### TEST CONDITIONS

| | |
|---|---|
| Mobile Phase: | MeOH/H2O 85/15 |
| Flow Rate: | 120 ml/min |
| Temperature: | Ambient |
| Pressure: | 10 bar |
| Detector: | UV @ 254 nm |
| Sensitivity: | 1.8 mV |

### Description:

| | |
|---|---|
| Packing Material: | Luna 100 C18(3), 10 µm |
| Length: | 250 mm |
| ID: | 70 mm |
| Shipping Solvent: | Mobile Phase |
| Maximum Pressure: | 100 bar |
| Hardware Type: | Longlife |
| Frit: | 2 µm |
| pH Range: | 2.0 - 8.0 |

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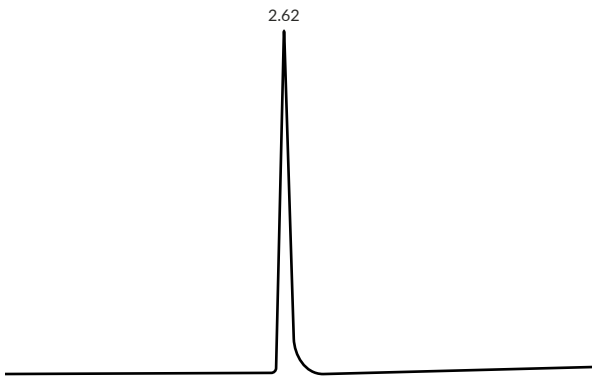
# 3 µm MEDIA FOR ACHIRAL SFC

## Reprospher 100 2-EP,

**3 µm, 100 mm L x 50 mm ID**




ca. 90,000 N/m

### TEST CONDITIONS

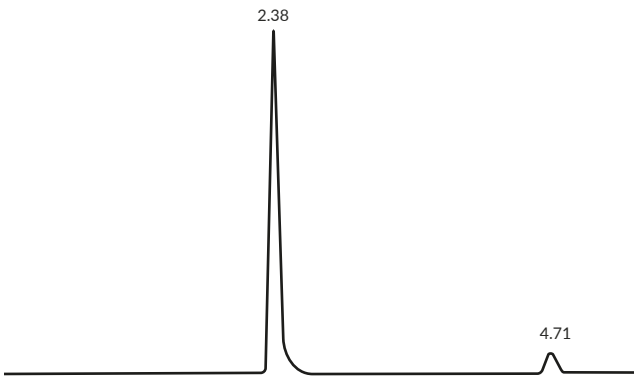
| | |
|---|---|
| Mobile Phase: | MeOH/H2O 85/15 |
| Flow Rate: | 60 ml/min |
| Temperature: | Ambient |
| Pressure: | 85 bar |
| Detector: | UV @ 254 nm |
| Sensitivity: | 21.1 mV |

### Description:

| | |
|---|---|
| Packing Material: | Reprosher 100 PEI 3 µm |
| Length: | 100 mm |
| ID: | 50 mm |
| Shipping Solvent: | Mobile Phase |
| Maximum Pressure: | 200 bar |
| Hardware Type: | Longlife SFC |
| Frit: | 2 µm |
| pH Range: | 2.0 - 8.0 |

## Reprospher 100 PEI,

**3 µm, 100 mm L x 50 mm ID**




ca. 110,000 N/m

### TEST CONDITIONS

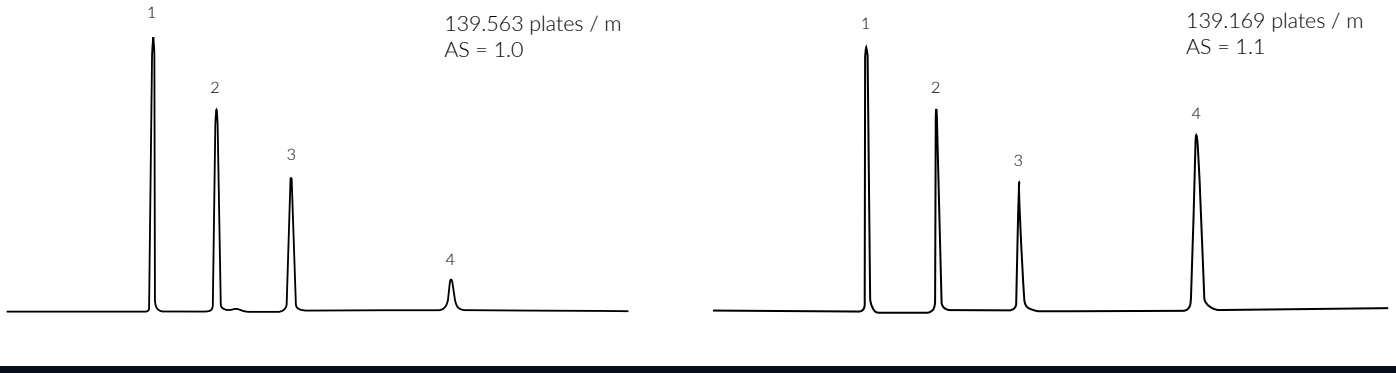
| | |
|---|---|
| Mobile Phase: | MeOH/H2O 85/15 |
| Flow Rate: | 60 ml/min |
| Temperature: | Ambient |
| Pressure: | 120 bar |
| Detector: | UV @ 254 nm |
| Sensitivity: | 58.7 mV |

### Description:

| | |
|---|---|
| Packing Material: | Reprosher 100 PEI 3 µm |
| Length: | 100 mm |
| ID: | 50 mm |
| Shipping Solvent: | Mobile Phase |
| Maximum Pressure: | 200 bar |
| Hardware Type: | Longlife SFC |
| Frit: | 2 µm |
| pH Range: | 2.0 - 8.0 |

# HIGH RESOLUTION PREP CHROMATOGRAPHY PREP COLUMN PERFORMANCE WITH 3 µm PARTICLES

UP-SCALE




1 - Uracil 2 - Phenol 3 - N,N-Diethyl-M-Toluamide 4 - Toluene

250 x 4,6 mm

250 x 50 mm

## BENEFITS OF LONGLIFE

DR. MAISCH

- Packed by piston
- Flexible bed length
- DAC and SAC mechanism
- Packing and repacking service
- Available column ID - 25, 30, 40, 50, 70
- Scalability to > 150 mm ID -Using ModCol column / Multipacker

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# Saving with every column and repacking

Often the column hardware represents a significant part of the column value:

| | |
|---|---|
| Hardware: | 50 % |
| Packing Serv: | 20 % |
| Media: | 30 % |

Longlife packed with ReproSil-Pur Basic-C18 10 µm; 250 x 50 mm

Savings upon multiple repacking of LongLife hardware.

# SUMMARY

01

Performance and stability are extremely high!

Column size is shorter compared to MoDcol.

02

Technology:

Packing is similar to MoD-col, but the reservoir and the column are separated after the packing.

03

The piston stays in the column

04

Can only packed at Dr. Maisch HPLC

05

Option to use MoDcol columns with same packing technology if interested in self-packing or for diameters > 70 mm

06

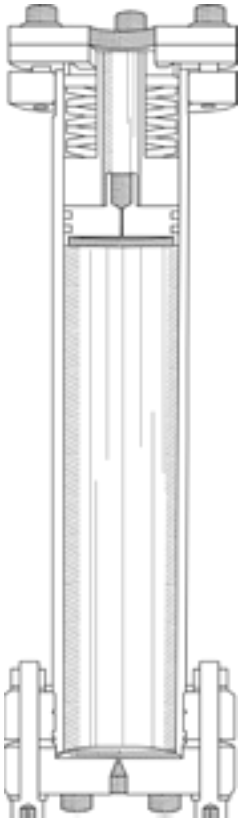
Longlife is available in DAC and SAC mode:

25, 30, 40, 50 and 70 mm ID

# Dr. Maisch

Any Column, Any Size, Any Media

Distributor:



Dr. Maisch HPLC GmbH
Beim Brückle 14
D-72119 Ammerbuch
T: +49 (0) 7073 50357
F: +49 (0) 7073 4216
www.dr-maisch.com
www.modcol.com
info@dr-maisch.com

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