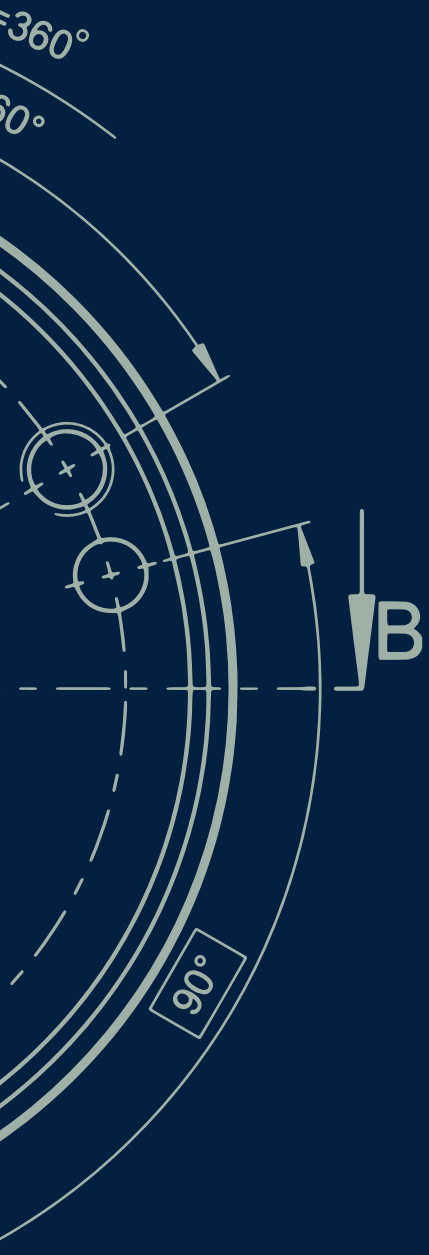
Science with Passion

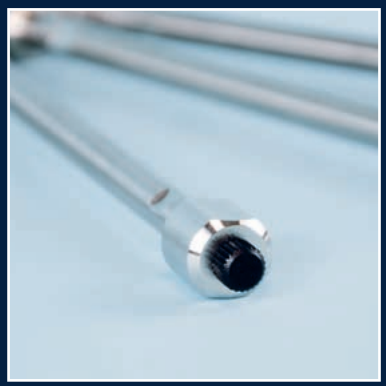
KNAUER



Column Selection Guide

2023/2024

for (U)HPLC, Prep. LC, FPLC and GPC



Welcome to KNAUER

About KNAUER

Based in Berlin, KNAUER is a medium-sized, owner-managed company that has been serving the sciences since 1962. We develop and manufacture scientific instruments of superior quality for liquid chromatography. The range includes systems and components for analytical HPLC/UHPLC, preparative HPLC, fast protein liquid chromatography (FPLC), multi-column chromatography/simulated moving bed (SMB), gel permeation chromatography/size exclusion chromatography (GPC/SEC), osmometry and Skids for the production of lipid nanoparticles (LNP).

Sustainability & ecological commitment

We are committed to protect the environment for ourselves and our children. KNAUER contributes to the conservation of a healthy environment by basing our work on an environmental management system according to DIN EN ISO 14001. The KNAUER quality management system according to DIN EN ISO 9001 and EN ISO 13485:2016 makes sure that we continuously manufacture products in the best quality possible. As a family business with about 190 employees, KNAUER focuses on sustainability and takes responsibility for our future.

Some of our ecological activities:

- The regular creation of an input and output balance for the determination and evaluation of energy and resource flows
- Environmentally friendly product development, energy-efficient production, and shipping with biodegradable packaging materials and re-usable packaging with local suppliers
- Fixed specifications for the development of new products according to ecological aspects such as low solvent consumption, repairability, and longevity of the products
- Complete modernization of the company building included thermal insulation, new windows, electric blinds, and a green rooftop, which resulted in a 50 % heating energy saving
- 100 % green electricity and generation of solar power with our photovoltaic system on the roof
- Guidelines for business travel from an environmental, economic, and social perspective
- Tips and instructions for clients to reduce solvent consumption during instrument use
- Environmentally compatible working and manufacturing of HPLC instruments and accessories, e.g. by using energy-efficient working equipment and reducing the use of solvents and harmful substances
- A life cycle assessment to optimize the manufacturing process and concentrate on electricity saving components

Sustainability: #KNAUERforFuture

Many KNAUER employees have good ideas for sustainability, and so we all get better together every year. We would like to inspire YOU to implement sustainability in many areas of your company, too. May these short videos keep you entertained and invite you to act! **www.knauer.net/sustainable**.

Non-native conditions

Substance to analyze or purify

- **Molecular weight < 2000 Da**
  - **Soluble in water**
    - Ionic
      - **Ion-exclusion**
      - **HILIC**
      - **Reversed Phase (RP)**
    - Non-ionic
      - **Reversed Phase (RP)**
  - **Soluble in organic solvent**
    - Soluble in ACN/H2O, MeOH/H2O
      - **Reversed Phase (RP)**
    - Soluble in Hexane/ Heptane
      - **Normal Phase (NP)**
    - Soluble in THF, Toluene, Chloroform
      - **GPC**
- **Molecular weight > 2000 Da**
  - **Soluble in organic solvent**
    - Soluble in DMSO, DMAc, DMF
      - **Special GPC**
      - **SEC**
  - **Soluble in water**
    - **Wide pore Reversed Phase (RP)**

Ion-exclusion	HILIC	Reversed Phase (RP)	Normal Phase (NP)	GPC	Special GPC	SEC	Wide pore Reversed Phase (RP)
H-form (USP L17) Ca-form (USP L19) Pb-form (USP L34) Na-form (USP -)	Silica (USP L3) NH2 (USP L8) Zwitter-ionic HILIC (USP -)	Classical C18 (USP L1) Hydrophilic/ aqueous C18 (USP L1) Hydrophobic/ pH stable C18 (USP L1) Classical C8 (USP L7) Hydrophilic/ aqueous C8 (USP L7) Hydrophobic/ pH stable C8 (USP L7) C4 (USP L26) CN (USP L10) Phenyl (USP L11)	Silica (USP L3) NH2 (USP L8) Diol (USP L20) Cyano (USP L10)	Porous styrene-divinyl-benzene	Special GPC polymer material	Hydro-philic polymer material	Wide pore classical C18 (USP L1) Wide pore C18A hydrophilic/ aqueous (USP L1) Wide pore C8 (USP L7) Wide pore C4 (USP L26)
Eurokat		**KNAUER Eurospher Eurospher II**		**Applichrom® ABOA StyDiViBe**	**Applichrom® ABOA DMAc-Phil, DMSO-Phil**	**Applichrom® ABOA Super-OH**	**KNAUER Eurosil Bioselect**

Native conditions

Substance to analyze or purify

- **Proteins with specific Affinity**
  - Tagged Proteins → **Tag-Affinity Chromatography (AC)** → GST-tag; His-tag
  - Anti-bodies → **Antibody Affinity Chromatography (AC)** → Protein A; Protein G
- **Charged Biomolecules**
  - Anions → **Anion Ex-change (IEX)** → Weak anion ex-changer; Strong anion exchanger
  - Cations → **Cation Ex-change (IEX)** → Weak cation exchanger; Strong cation exchanger
- **Group separation of high and low molecular weight Biomolecules** → **Desalting/Buffer Exchange (SEC)** → Desalting

KNAUER Sepapure®

Find more information

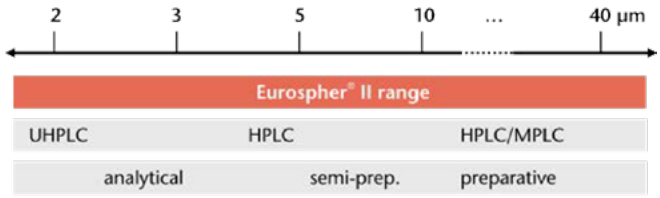
Finding the best fitting column for your HPLC/UHPLC, GPC or FPLC application always starts with looking closely at the substances you want to analyse or purify.

This flow chart gives you a guideline how to select the right column for your application. Start at the top and follow the decision lines all the way down to find a column recommendation.

More details about KNAUER columns and phases can be found in the Column Product Selection Guide and online: www.knauer.net/columns

Eurospher II

Eurospher II offers outstanding mechanical and chemical stability. With physical properties very similar to those of Kromasil 100, Eurospher II columns can be used to replace Kromasil® columns, providing excellent peak symmetry for acids, bases, and neutrals.



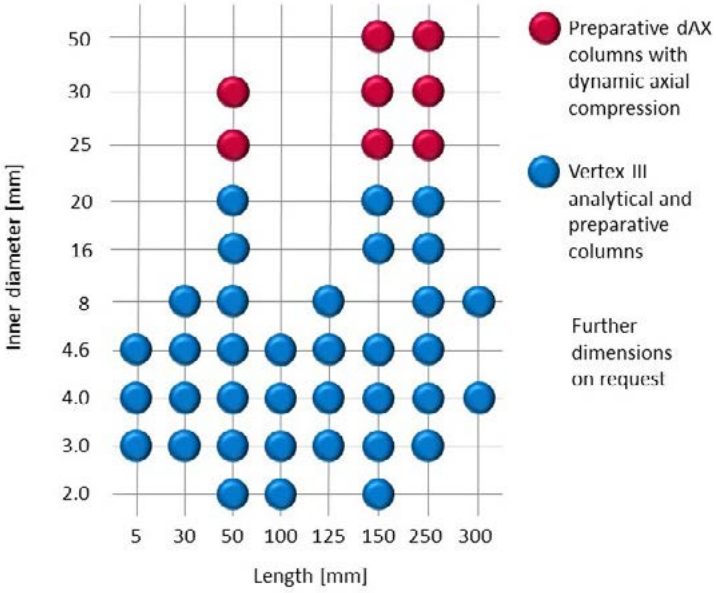
Compared to Kromasil® 100, Eurospher II has

- nearly the same particle shape
- a lower metal impurity specification
- higher mechanical stability
- comparable selectivity in RP mode (Eurospher II C18 H vs. Kromasil® 100 C18)

Physical properties

Silica gel	ultra pure, > 99.99 %
Metal content	< 10 ppm
Particle size	2 / 3 / 5 / 10 µm (15 / 20–45 µm upon request)
Particle form	spherical
Pore size	100 Å
Specific surface	320 ± 20 m^2/g
Pore volume	0.8 ml/g
Density	430 g/l

Available column dimensions



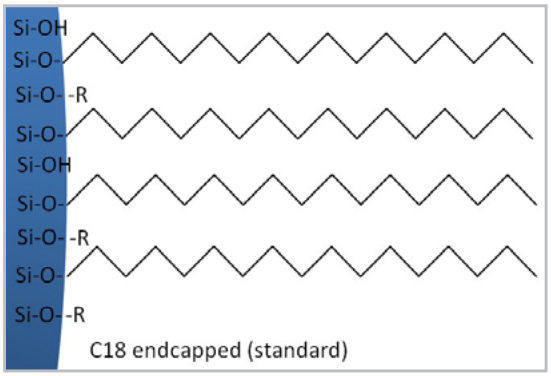
Recommended application areas

Phase type	non polar	polar	acidic	basic	Chelator	hydroph. retention	shape selectivity	extreme aqueous	pH > 9	LC-MS
C18										
C18 H										
C18 P										
C18 A										
Phenyl										
C8										
C8 A										
C4										
HILIC										
NH_2										
CN										
Diol										
Si										

excellent | good | suitable | not recommended

Eurospher II 100 C18 - USP L1

- Ultra pure, spherical high performance HPLC phase based on silica gel
- Unpolar, monomeric C18 (Octadecyl) modification, endcapped, with 16 % carbon content (~ 50 % endcapping).



Properties

Separation mechanism: Hydrophobic interaction

Key features

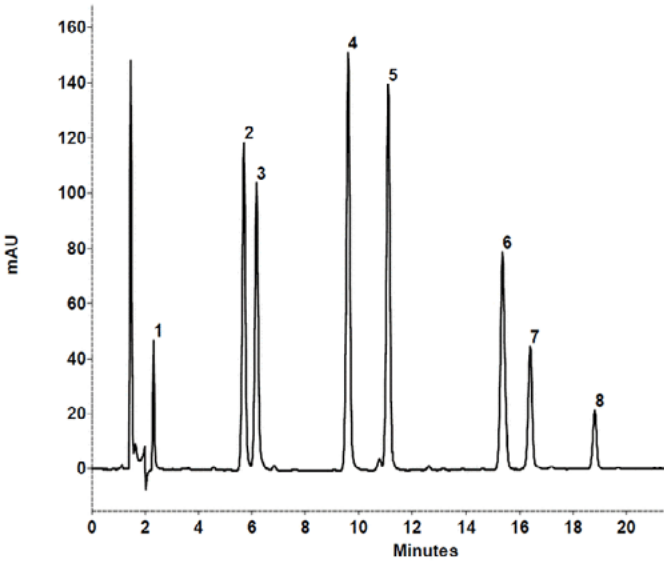
High-class HPLC phase perfectly suited to take on routine analyses as well as the most ambitious chromatography tasks, classical C18 phase with ca. 50 % endcapping and resulting 16 % carbon content, outstanding mechanical and chemical stability.

Tip: Never use classical C18 phases with 100 % aqueous mobile phase. The hydrophobic C18 chains will collapse.

Recommended application areas

- acidic, basic and neutral analytes in reversed phase mode, for example sulphonamides
- anabolic steroids
- anti-psychotics
- beta blocker
- sudan dyes
- phenols and preservatives

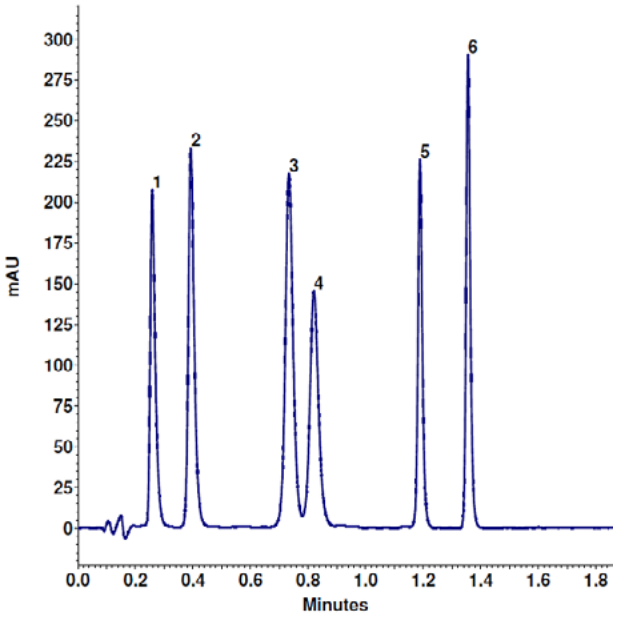
Eurospher II 100-5 C18, 150 x 2.0 mm ID
Article number: 15BE181E2J



Selectivity test mix

1. Uracil
2. Aniline
3. Phenol
4. p-Ethylaniline
5. N,N-Dimethylaniline
6. Benzoic acid ethylester
7. Toluene
8. Ethylbenenzene

Eurospher II 100-2 C18, 50 x 2 mm ID
Article number: 05BE181E2F



Steroids

1. Cortisone
2. Corticosterone
3. Testosterone
4. Deoxycorticosterone
5. Norgestrel
6. Progesterone

Ordering information

Upon request we can also provide further information about more possible combinations of material particle size and hardware configurations. Shown here are only the most common combinations.

Eurospher II 100 C18

Column length & equipment	3 mm ID			4 mm ID			4.6 mm ID		
	Order No.	3 µm ...E181E2G	5 µm ...E181E2J	Order No.	3 µm ...E181E2G	5 µm ...E181E2J	Order No.	3 µm ...E181E2G	5 µm ...E181E2J
250 mm	**25C...**	25CE181E2G	25CE181E2J	**25D...**	25DE181E2G	25DE181E2J	**25E...**	25EE181E2G	25EE181E2J
with integrated precolumn	**25X...**	25XE181E2G	25XE181E2J	**25W...**	25WE181E2G	25WE181E2J	**25V...**	25VE181E2G	25VE181E2J
150 mm	**15C...**	15CE181E2G	15CE181E2J	**15D...**	15DE181E2G	15DE181E2J	**15E...**	15EE181E2G	15EE181E2J
with integrated precolumn	**15X...**	15XE181E2G	15XE181E2J	**15W...**	15WE181E2G	15WE181E2J	**15V...**	15VE181E2G	15VE181E2J
100 mm	**10C...**	10CE181E2G	10CE181E2J	**10D...**	10DE181E2G	10DE181E2J	**10E...**	10EE181E2G	10EE181E2J
with integrated precolumn	**10X...**	10XE181E2G	10XE181E2J	**10W...**	10WE181E2G	10WE181E2J	**10V...**	10VE181E2G	10VE181E2J
50 mm	**05C...**	05CE181E2G	05CE181E2J	**05D...**	05DE181E2G	05DE181E2J	**05E...**	05EE181E2G	05EE181E2J
5 mm precolumn cartridge	**P6C...**	P6CE181E2G	P6CE181E2J	**P6D...**	P6DE181E2G	P6DE181E2J	**P6E...**	P6EE181E2G	P6EE181E2J

Column length	2 mm ID		
	Order No.	2 µm ...E181E2F	3 µm ...E181E2G
150 mm	**15B...**	15BE181E2F	15BE181E2G
100 mm	**10B...**	10BE181E2F	10BE181E2G
50 mm	**05B...**	05BE181E2F	05BE181E2G

Eurospher II 100 C18 semi-preparative standard columns

Column length & style	8 mm ID			16 mm ID		
	Order No.	5 µm ...E181E2J	10 µm ...E181E2N	Order No.	5 µm ...E181E2J	10 µm ...E181E2N
250 mm	**25G...**	25GE181E2J	25GE181E2N	25I...	25IE181E2J	25IE181E2N
150 mm	**-**	-	-	15I...	15IE181E2J	15IE181E2N
125 mm	**12G...**	12GE181E2J	12GE181E2N	-	-	-
50 mm	**05G...**	05GE181E2J	05GE181E2N	05I...	05IE181E2J	05IE181E2N
30 mm	**03G...**	03GE181E2J	03GE181E2N	-	-	-

Eurospher II 100 C18 preparative standard columns

Column length & style	20 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E181E2J	10 µm ...E181E2N	Order No.	5 µm ...E181E2J	10 µm ...E181E2N	Order No.	10 µm ...E181E2N	15 µm ...E181E2Q
250 mm	**25J...**	25JE181E2J	25JE181E2N	25M...	25ME181E2J	25ME181E2N	25O...	25OE181E2N	25OE181E2Q
150 mm	**15J...**	15JE181E2J	15JE181E2N	15M...	15ME181E2J	15ME181E2N	15O...	15OE181E2N	15OE181E2Q
50 mm	**05J...**	05JE181E2J	05JE181E2N	05M...	05ME181E2J	05ME181E2N	05O...	05OE181E2N	05OE181E2Q

Eurospher II 100 C18 preparative dAX columns with dynamic axial compression

Column length & style	25 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E181E2J	10 µm ...E181E2N	Order No.	5 µm ...E181E2J	10 µm ...E181E2N	Order No.	10 µm ...E181E2N	15 µm ...E181E2Q
250 mm	**25T...**	25TE181E2J	25TE181E2N	25U...	25UE181E2J	25UE181E2N	25Z...	25ZE181E2N	25ZE181E2Q
150 mm	**15T...**	15TE181E2J	15TE181E2N	15U...	15UE181E2J	15UE181E2N	15Z...	15ZE181E2N	15ZE181E2Q
50 mm	**05T...**	05TE181E2J	05TE181E2N	05U...	05UE181E2J	05UE181E2N	05Z...	05ZE181E2N	05ZE181E2Q

Eurospher II 100 C18 A - USP L1

- Ultra pure, spherical high performance HPLC phase based on silica gel
- Polar, monomeric C18 (Octadecyl) modification, polar endcapping, with 10 % carbon content (~ 50 % endcapping)

Properties

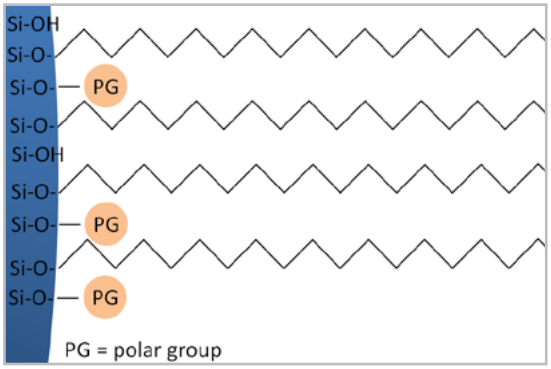
Separation mechanism: Hydrophobic and polar interaction

Key features

C18 A phase with alternative, more polar selectivity, suited for the use with pure aqueous mobile phases, 50 % endcapping and resulting 10 % carbon content, outstanding mechanical and chemical stability, suited for analytical as well as semi preparative and preparative applications.

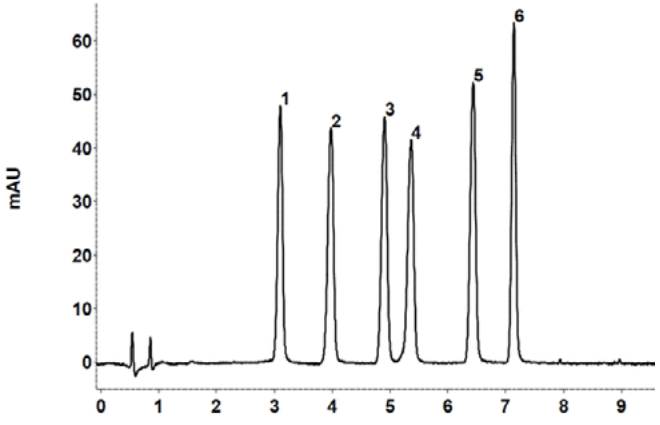
Recommended application areas

Polar endcapped C18 phase for water soluble and polar analytes, 100 % aqueous eluents for analysis of very polar compounds, basic pharmaceutical ingredients, water soluble vitamins, catecholamines as well as organic acids.



Tip: With an endcapping the influence of non-derivatized silanol groups can be minimized. The endcapping reagent is generally a smaller silane than used for derivatisation. This treatment reduces the unwanted interaction of polar or charged analytes (acids, bases ect.) because the amount of available silanol groups is reduced.

Eurospher II 100-3 C18 A, 100 x 3 mm ID
Article number: 10CE184E2G

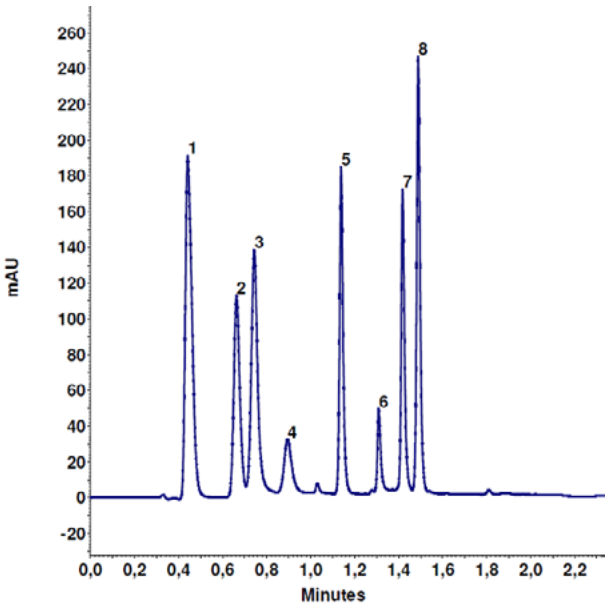


Aldehydes/Ketones

DNPH Derivates of:

1. Formaldehyde
2. Acetaldehyde
3. Acetone
4. Acroleine
5. Propionaldehyde
6. Crotonaldehyde

Eurospher II 100-2 C18 A, 100 x 2 mm ID
Article number: 10BE184E2F



Water soluble vitamins

1. Ascorbic acid
2. Nicotinic acid
3. Thiamine
4. Pyridoxin
5. Nicotinamid
6. Folic acid
7. Cyanocobalamine
8. Riboflavin

Ordering information

Upon request we can also provide further information about more possible combinations of material particle size and hardware configurations. Shown here are only the most common combinations.

Eurospher II 100 C18 A

Column length & equipment	3 mm ID			4 mm ID			4.6 mm ID		
	Order No.	3 µm ...E184E2G	5 µm ...E184E2J	Order No.	3 µm ...E184E2G	5 µm ...E184E2J	Order No.	3 µm ...E184E2G	5 µm ...E184E2J
250 mm	**25C...**	25CE184E2G	25CE184E2J	**25D...**	25DE184E2G	25DE184E2J	**25E...**	25EE184E2G	25EE184E2J
with integrated precolumn	**25X...**	25XE184E2G	25XE184E2J	**25W...**	25WE184E2G	25WE184E2J	**25V...**	25VE184E2G	25VE184E2J
150 mm	**15C...**	15CE184E2G	15CE184E2J	**15D...**	15DE184E2G	15DE184E2J	**15E...**	15EE184E2G	15EE184E2J
with integrated precolumn	**15X...**	15XE184E2G	15XE184E2J	**15W...**	15WE184E2G	15WE184E2J	**15V...**	15VE184E2G	15VE184E2J
100 mm	**10C...**	10CE184E2G	10CE184E2J	**10D...**	10DE184E2G	10DE184E2J	**10E...**	10EE184E2G	10EE184E2J
with integrated precolumn	**10X...**	10XE184E2G	10XE184E2J	**10W...**	10WE184E2G	10WE184E2J	**10V...**	10VE184E2G	10VE184E2J
50 mm	**05C...**	05CE184E2G	05CE184E2J	**05D...**	05DE184E2G	05DE184E2J	**05E...**	05EE184E2G	05EE184E2J
5 mm precolumn cartridge	**P6C...**	P6CE184E2G	P6CE184E2J	**P6C...**	P6CE184E2G	P6CE184E2J	**P6E...**	P6EE184E2G	P6EE184E2J

Column length	2 mm ID		
	Order No.	2 µm ...E184E2F	3 µm ...E184E2G
150 mm	**15B...**	15BE184E2F	15BE184E2G
100 mm	**10B...**	10BE184E2F	10BE184E2G
50 mm	**05B...**	05BE184E2F	05BE184E2G

Eurospher II 100 C18 A semi-preparative standard columns

Column length & style	8 mm ID			16 mm ID		
	Order No.	5 µm ...E184E2J	10 µm ...E184E2N	Order No.	5 µm ...E184E2J	10 µm ...E184E2N
250 mm	**25G...**	25GE184E2J	25GE184E2N	**25I...**	25IE184E2J	25IE184E2N
150 mm	**-**	-	-	**15I...**	15IE184E2J	15IE184E2N
125 mm	**12G...**	12GE184E2J	12GE184E2N	**-**	-	-
50 mm	**05G...**	05GE184E2J	05GE184E2N	**05I...**	05IE184E2J	05IE184E2N
30 mm	**03G...**	03GE184E2J	03GE184E2N	**-**	-	-

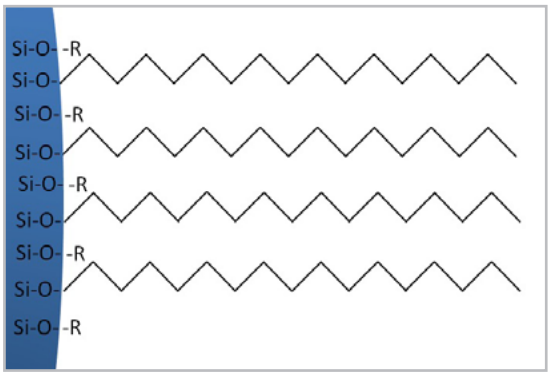
Eurospher II 100 C18 A preparative standard columns

Column length & style	20 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E184E2J	10 µm ...E184E2N	Order No.	5 µm ...E184E2J	10 µm ...E184E2N	Order No.	10 µm ...E184E2N	15 µm ...E184E2Q
250 mm	**25J...**	25JE184E2J	25JE184E2N	**25M...**	25ME184E2J	25ME184E2N	**25O...**	25OE184E2N	25OE184E2Q
150 mm	**15J...**	15JE184E2J	15JE184E2N	**15M...**	15ME184E2J	15ME184E2N	**15O...**	15OE184E2N	15OE184E2Q
50 mm	**05J...**	05JE184E2J	05JE184E2N	**05M...**	05ME184E2J	05ME184E2N	**05O...**	05OE184E2N	05OE184E2Q

Eurospher II 100 C18 A preparative dAX columns with dynamic axial compression

Column length & style	25 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E184E2J	10 µm ...E184E2N	Order No.	5 µm ...E184E2J	10 µm ...E184E2N	Order No.	10 µm ...E184E2N	15 µm ...E184E2Q
250 mm	**25T...**	25TE184E2J	25TE184E2N	**25U...**	25UE184E2J	25UE184E2N	**25Z...**	25ZE184E2N	25ZE184E2Q
150 mm	**15T...**	15TE184E2J	15TE184E2N	**15U...**	15UE184E2J	15UE184E2N	**15Z...**	15ZE184E2N	15ZE184E2Q
50 mm	**05T...**	05TE184E2J	05TE184E2N	**05U...**	05UE184E2J	05UE184E2N	**05Z...**	05ZE184E2N	05ZE184E2Q

Eurospher II 100 C18 H - USP L1



- Ultra pure, spherical high performance HPLC phase based on silica gel
- Nonpolar, monomeric C18 (Octadecyl) modification, high efficiency endcapping with 17 % carbon content (~ 99 % endcapping)

Properties

Separation mechanism: Hydrophobic interaction

Key features

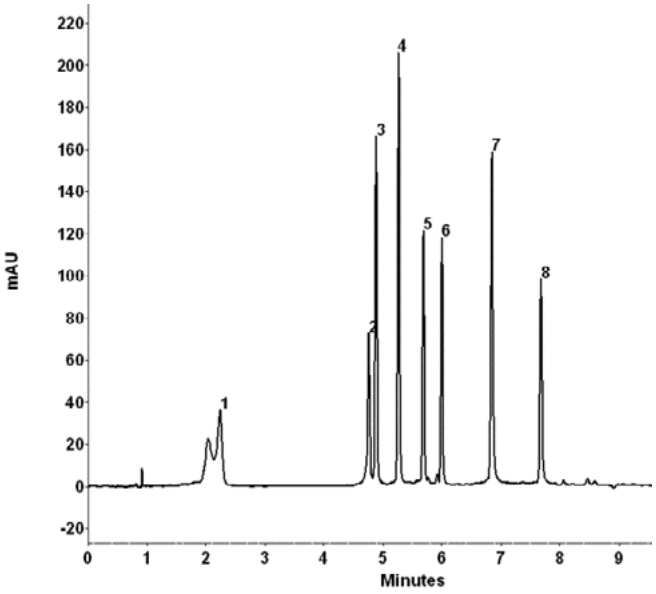
Nonpolar C18 phase with high efficiency endcapping and 17 % carbon content, resulting in higher pH stability in the range of 1–12, outstanding mechanical and chemical stability, suited for analytical as well as semi preparative and preparative applications.

Tip: All analytical KNAUER columns can be used in reversed flow direction for example for cleaning. Please refer to our Column care and use documents on the website for further information about storage conditions and cleaning procedures.

Recommended application areas

Recommended alternative to Kromasil 100 C18, for acidic, basic and neutral analytes in reversed phase mode with extended pH range.

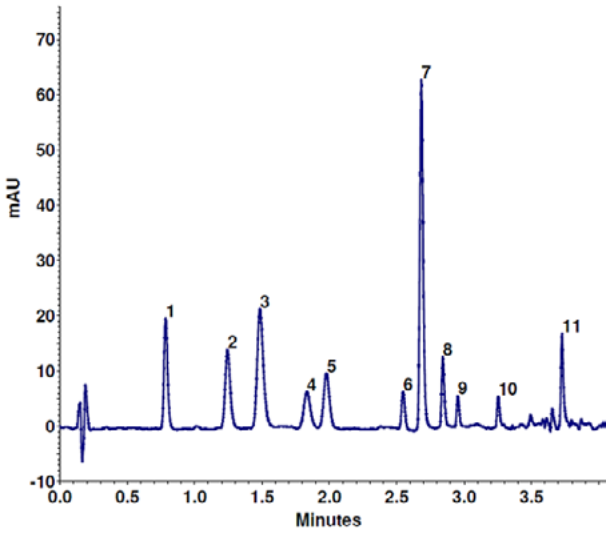
Eurospher II 100-3 C18 H, 150 x 3.0 mm ID
Article number: 15CE185E2G



Polyphenols

1. Gallic acid
2. Chlorogenic acid
3. Catechin
4. Epicatechin
5. Rutin
6. Kaempferol-3-o-rutinoside
7. Myricitin
8. Quercetin

Eurospher II 100-2 C18 H, 50 x 2 mm ID
Article number: 05BE185E2F



Phenols

1. Phenol
2. 4-Nitrophenol
3. 2.4-Dinitrophenol
4. 2-Nitrophenol
5. 2-Chlorophenol
6. 2.3-Dimethylphenol
7. 2-Methyl-4.6-dinitrophenol
8. 4-Chloro-3-Methylphenol
9. 4-Dichlorophenol
10. 6-Trichlorophenol
11. Pentachlorophenol

Ordering information

Upon request we can also provide further information about more possible combinations of material particle size and hardware configurations. Shown here are only the most common combinations.

Eurospher II 100 C18 H

Column length & equipment	3 mm ID			4 mm ID			4.6 mm ID		
	Order No.	3 µm ...E185E2G	5 µm ...E185E2J	Order No.	3 µm ...E185E2G	5 µm ...E185E2J	Order No.	3 µm ...E185E2G	5 µm ...E185E2J
250 mm	**25C...**	25CE185E2G	25CE185E2J	**25D...**	25DE185E2G	25DE185E2J	**25E...**	25EE185E2G	25EE185E2J
with integrated precolumn	**25X...**	25XE185E2G	25XE185E2J	**25W...**	25WE185E2G	25WE185E2J	**25V...**	25VE185E2G	25VE185E2J
150 mm	**15C...**	15CE185E2G	15CE185E2J	**15D...**	15DE185E2G	15DE185E2J	**15E...**	15EE185E2G	15EE185E2J
with integrated precolumn	**15X...**	15XE185E2G	15XE185E2J	**15W...**	15WE185E2G	15WE185E2J	**15V...**	15VE185E2G	15VE185E2J
100 mm	**10C...**	10CE185E2G	10CE185E2J	**10D...**	10DE185E2G	10DE185E2J	**10E...**	10EE185E2G	10EE185E2J
with integrated precolumn	**10X...**	10XE185E2G	10XE185E2J	**10W...**	10WE185E2G	10WE185E2J	**10V...**	10VE185E2G	10VE185E2J
50 mm	**05C...**	05CE185E2G	05CE185E2J	**05D...**	05DE185E2G	05DE185E2J	**05E...**	05EE185E2G	05EE185E2J
5 mm precolumn cartridge	**P6C...**	P6CE185E2G	P6CE185E2J	**P6C...**	P6CE185E2G	P6CE185E2J	**P6E...**	P6EE185E2G	P6EE185E2J

Column length	2 mm ID		
	Order No.	2 µm ...E185E2F	3 µm ...E185E2G
150 mm	**15B...**	15BE185E2F	15BE185E2G
100 mm	**10B...**	10BE185E2F	10BE185E2G
50 mm	**05B...**	05BE185E2F	05BE185E2G

Eurospher II 100 C18 H semi-preparative standard columns

Column length & style	8 mm ID			16 mm ID		
	Order No.	5 µm ...E185E2J	10 µm ...E185E2N	Order No.	5 µm ...E185E2J	10 µm ...E185E2N
250 mm	**25G...**	25GE185E2J	25GE185E2N	**25I...**	25IE185E2J	25IE185E2N
150 mm	**-**	-	-	**15I...**	15IE185E2J	15IE185E2N
125 mm	**12G...**	12GE185E2J	12GE185E2N	**-**	-	-
50 mm	**05G...**	05GE185E2J	05GE185E2N	**05I...**	05IE185E2J	05IE185E2N
30 mm	**03G...**	03GE185E2J	03GE185E2N	**-**	-	-

Eurospher II 100 C18 H preparative standard columns

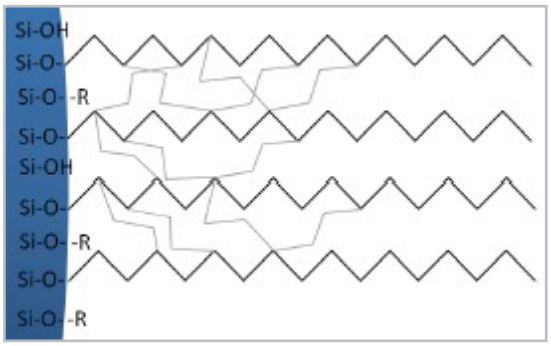
Column length & style	20 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E185E2J	10 µm ...E185E2N	Order No.	5 µm ...E185E2J	10 µm ...E185E2N	Order No.	10 µm ...E185E2N	15 µm ...E185E2Q
250 mm	**25J...**	25JE185E2J	25JE185E2N	**25M...**	25ME185E2J	25ME185E2N	**25O...**	25OE185E2N	25OE185E2Q
150 mm	**15J...**	15JE185E2J	15JE185E2N	**15M...**	15ME185E2J	15ME185E2N	**15O...**	15OE185E2N	15OE185E2Q
50 mm	**05J...**	05JE185E2J	05JE185E2N	**05M...**	05ME185E2J	05ME185E2N	**05O...**	05OE185E2N	05OE185E2Q

Eurospher II 100 C18 H preparative dAX columns with dynamic axial compression

Column length & style	25 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E185E2J	10 µm ...E185E2N	Order No.	5 µm ...E185E2J	10 µm ...E185E2N	Order No.	10 µm ...E185E2N	15 µm ...E185E2Q
250 mm	**25T...**	25TE185E2J	25TE185E2N	**25U...**	25UE185E2J	25UE185E2N	**25Z...**	25ZE185E2N	25ZE185E2Q
150 mm	**15T...**	15TE185E2J	15TE185E2N	**15U...**	15UE185E2J	15UE185E2N	**15Z...**	15ZE185E2N	15ZE185E2Q
50 mm	**05T...**	05TE185E2J	05TE185E2N	**05U...**	05UE185E2J	05UE185E2N	**05Z...**	05ZE185E2N	05ZE185E2Q

Eurospher II 100 C18 P - USP L1

- Ultra pure, spherical high performance HPLC phase based on silica gel
- Unpolar, trifunctional C18 (Octadecyl) modification, high efficiency endcapping, with 20 % carbon content (~ 99 % endcapping)



Properties

Separation mechanism: Hydrophobic and steric interaction

Key features

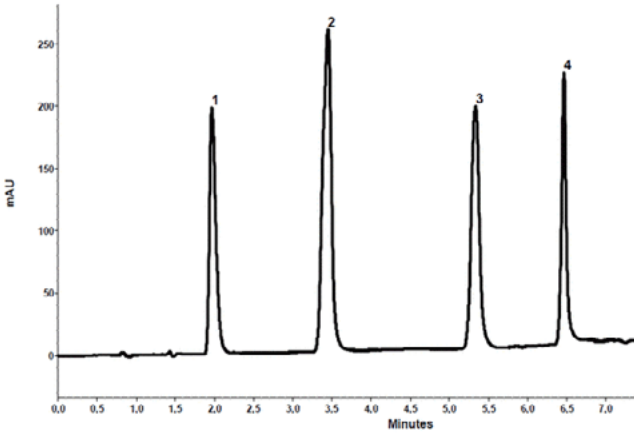
KNAUER´s most unpolar C18 phase, polymeric, high efficiency endcapping of 99 % and 20 % carbon content, higher pH stability in the range of 1-12, outstanding mechanical and chemical stability, suited for analytical as well as semi preparative and preparative applications.

Tip: Not all C18 phases are comparable! When replacing an existing column, always have a close look at the characteristics like carbon load, pore size and specific surface area.

Recommended application areas

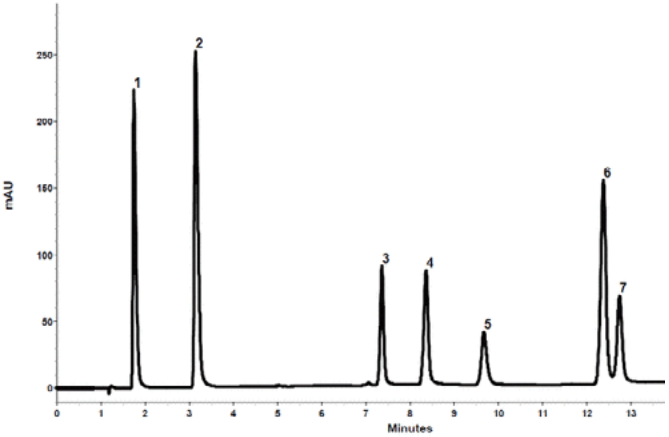
Alternative selectivity to standard C18; stationary phase in Eurospher II C18 family with the highest carbon load; fully endcapped; excellent shape selectivity and pH stability.

Eurospher II 100-3 C18 P, 100 x 3.0 mm ID
Article number: 10CE182E2G



Sedativa

1. Barbital
2. Luminal
3. Prominal
4. Revonal



Softdrink additives

1. Acesulfam
2. Saccharin
3. Vanilline
4. Caffeine
5. Aspartam
6. Benzoic acid
7. Sorbic acid

Ordering information

Upon request we can also provide further information about more possible combinations of material particle size and hardware configurations. Shown here are only the most common combinations.

Eurospher II 100 C18 P

Column length & equipment	3 mm ID			4 mm ID			4.6 mm ID		
	Order No.	3 µm ...E182E2G	5 µm ...E182E2J	Order No.	3 µm ...E182E2G	5 µm ...E182E2J	Order No.	3 µm ...E182E2G	5 µm ...E182E2J
250 mm	**25C...**	25CE182E2G	25CE182E2J	**25D...**	25DE182E2G	25DE182E2J	**25E...**	25EE182E2G	25EE182E2J
with integrated precolumn	**25X...**	25XE182E2G	25XE182E2J	**25W...**	25WE182E2G	25WE182E2J	**25V...**	25VE182E2G	25VE182E2J
150 mm	**15C...**	15CE182E2G	15CE182E2J	**15D...**	15DE182E2G	15DE182E2J	**15E...**	15EE182E2G	15EE182E2J
with integrated precolumn	**15X...**	15XE182E2G	15XE182E2J	**15W...**	15WE182E2G	15WE182E2J	**15V...**	15VE182E2G	15VE182E2J
100 mm	**10C...**	10CE182E2G	10CE182E2J	**10D...**	10DE182E2G	10DE182E2J	**10E...**	10EE182E2G	10EE182E2J
with integrated precolumn	**10X...**	10XE182E2G	10XE182E2J	**10W...**	10WE182E2G	10WE182E2J	**10V...**	10VE182E2G	10VE182E2J
50 mm	**05C...**	05CE182E2G	05CE182E2J	**05D...**	05DE182E2G	05DE182E2J	**05E...**	05EE182E2G	05EE182E2J
5 mm precolumn cartridge	**P6C...**	P6CE182E2G	P6CE182E2J	**P6C...**	P6CE182E2G	P6CE182E2J	**P6E...**	P6EE182E2G	P6EE182E2J

Column length	2 mm ID		
	Order No.	2 µm ...E182E2F	3 µm ...E182E2G
150 mm	**15B...**	15BE182E2F	15BE182E2G
100 mm	**10B...**	10BE182E2F	10BE182E2G
50 mm	**05B...**	05BE182E2F	05BE182E2G

Eurospher II 100 C18 P semi-preparative standard columns

Column length & style	8 mm ID			16 mm ID		
	Order No.	5 µm ...E182E2J	10 µm ...E182E2N	Order No.	5 µm ...E182E2J	10 µm ...E182E2N
250 mm	**25G...**	25GE182E2J	25GE182E2N	**25I...**	25IE182E2J	25IE182E2N
150 mm	**-**	-	-	**15I...**	15IE182E2J	15IE182E2N
125 mm	**12G...**	12GE182E2J	12GE182E2N	**-**	-	-
50 mm	**05G...**	05GE182E2J	05GE182E2N	**05I...**	05IE182E2J	05IE182E2N
30 mm	**03G...**	03GE182E2J	03GE182E2N	**-**	-	-

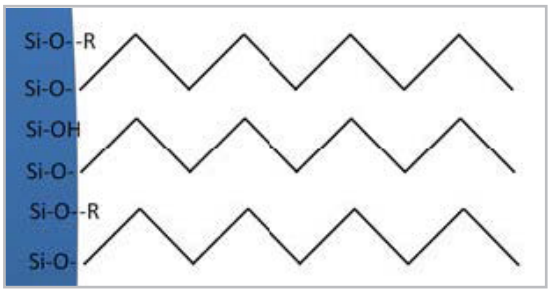
Eurospher II 100 C18 P preparative standard columns

Column length & style	20 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E182E2J	10 µm ...E182E2N	Order No.	5 µm ...E182E2J	10 µm ...E182E2N	Order No.	10 µm ...E182E2N	15 µm ...E182E2Q
250 mm	**25J...**	25JE182E2J	25JE182E2N	**25M...**	25ME182E2J	25ME182E2N	**25O...**	25OE182E2N	25OE182E2Q
150 mm	**15J...**	15JE182E2J	15JE182E2N	**15M...**	15ME182E2J	15ME182E2N	**15O...**	15OE182E2N	15OE182E2Q
50 mm	**05J...**	05JE182E2J	05JE182E2N	**05M...**	05ME182E2J	05ME182E2N	**05O...**	05OE182E2N	05OE182E2Q

Eurospher II 100 C18 P preparative dAX columns with dynamic axial compression

Column length & style	25 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E182E2J	10 µm ...E182E2N	Order No.	5 µm ...E182E2J	10 µm ...E182E2N	Order No.	10 µm ...E182E2N	15 µm ...E182E2Q
250 mm	**25T...**	25TE182E2J	25TE182E2N	**25U...**	25UE182E2J	25UE182E2N	**25Z...**	25ZE182E2N	25ZE182E2Q
150 mm	**15T...**	15TE182E2J	15TE182E2N	**15U...**	15UE182E2J	15UE182E2N	**15Z...**	15ZE182E2N	15ZE182E2Q
50 mm	**05T...**	05TE182E2J	05TE182E2N	**05U...**	05UE182E2J	05UE182E2N	**05Z...**	05ZE182E2N	05ZE182E2Q

Eurospher II 100 C8 - USP L7



- Ultra pure, spherical high performance HPLC phase based on silica gel
- Monomeric C8 (Octyl) modification, standard endcapping, with 10 % carbon content (~ 50 % endcapping)

Properties

Separation mechanism: Hydrophobic interaction (lower compared to C18 phases)

Key features

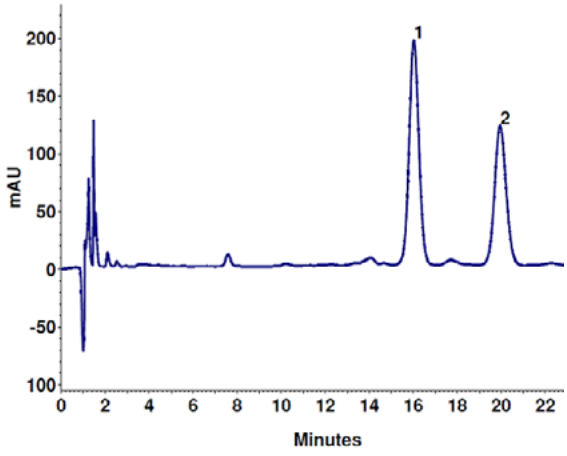
Classical C8 phase, standard 50 % endcapping and 10 % carbon load, outstanding mechanical and chemical stability, suited for analytical as well as semi preparative and preparative applications.

Recommended application areas

Similar selectivity to C18 phase but less retention due to the lower hydrophobicity; useful for determination of water soluble vitamins, steroids, catecholamines, sedatives etc.

Tip: Column lifetime can be extended by using moderate conditions like temperatures not higher than 45 °C, backpressure below the maximum pressure and a good sample preparation.

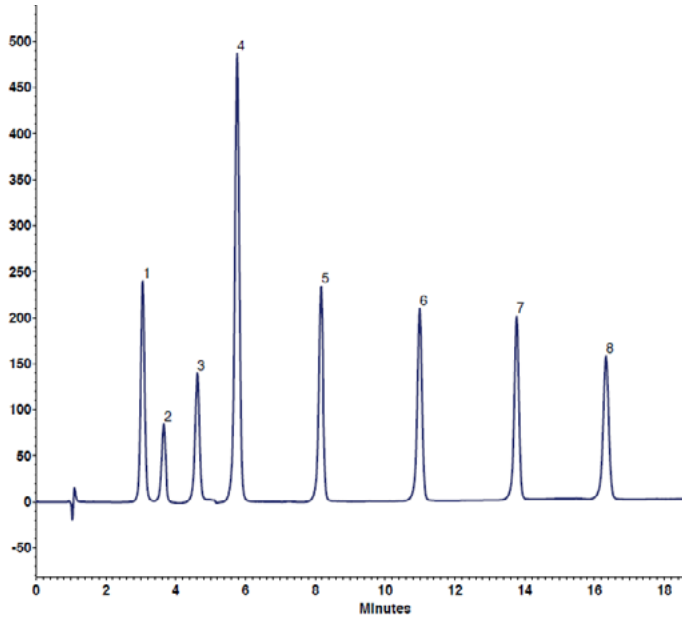
Eurospher II 100-5 C8, 150 x 4.6 mm ID
Article number: 15EE081E2J



Ingredients of cosmetics

1. Bisabolol oxide A
2. Bisabolol oxide B

Eurospher 100-5 C8, 125 x 4.0 mm ID
Article number: 12DE081ESJ



Preservatives

1. p-hydroxy benzoic acid
2. 2-methoxy benzoic acid
3. benzoic acid
4. sorbic acid
5. p-hydroxy methylbenzoate
6. p-hydroxy ethylbenzoate
7. p-hydroxy propylbenzoate
8. p-hydroxy butylbenzoate

Ordering information

Upon request we can also provide further information about more possible combinations of material particle size and hardware configurations. Shown here are only the most common combinations.

Eurospher II 100 C8

Column length & equipment	3 mm ID			4 mm ID			4.6 mm ID		
	Order No.	3 µm ...E081E2G	5 µm ...E081E2J	Order No.	3 µm ...E081E2G	5 µm ...E081E2J	Order No.	3 µm ...E081E2G	5 µm ...E081E2J
250 mm	**25C...**	25CE081E2G	25CE081E2J	**25D...**	25DE081E2G	25DE081E2J	**25E...**	25EE081E2G	25EE081E2J
with integrated precolumn	**25X...**	25XE081E2G	25XE081E2J	**25W...**	25WE081E2G	25WE081E2J	**25V...**	25VE081E2G	25VE081E2J
150 mm	**15C...**	15CE081E2G	15CE081E2J	**15D...**	15DE081E2G	15DE081E2J	**15E...**	15EE081E2G	15EE081E2J
with integrated precolumn	**15X...**	15XE081E2G	15XE081E2J	**15W...**	15WE081E2G	15WE081E2J	**15V...**	15VE081E2G	15VE081E2J
100 mm	**10C...**	10CE081E2G	10CE081E2J	**10D...**	10DE081E2G	10DE081E2J	**10E...**	10EE081E2G	10EE081E2J
with integrated precolumn	**10X...**	10XE081E2G	10XE081E2J	**10W...**	10WE081E2G	10WE081E2J	**10V...**	10VE081E2G	10VE081E2J
50 mm	**05C...**	05CE081E2G	05CE081E2J	**05D...**	05DE081E2G	05DE081E2J	**05E...**	05EE081E2G	05EE081E2J
5 mm precolumn cartridge	**P6C...**	P6CE081E2G	P6CE081E2J	**P6C...**	P6CE081E2G	P6CE081E2J	**P6E...**	P6EE081E2G	P6EE081E2J

Column length	2 mm ID		
	Order No.	2 µm ...E081E2F	3 µm ...E081E2G
150 mm	**15B...**	15BE081E2F	15BE081E2G
100 mm	**10B...**	10BE081E2F	10BE081E2G
50 mm	**05B...**	05BE081E2F	05BE081E2G

Eurospher II 100 C8 semi-preparative standard columns

Column length & style	8 mm ID			16 mm ID		
	Order No.	5 µm ...E081E2J	10 µm ...E081E2N	Order No.	5 µm ...E081E2J	10 µm ...E081E2N
250 mm	**25G...**	25GE081E2J	25GE081E2N	**25I...**	25IE081E2J	25IE081E2N
150 mm	**-**	-	-	**15I...**	15IE081E2J	15IE081E2N
125 mm	**12G...**	12GE081E2J	12GE081E2N	**-**	-	-
50 mm	**05G...**	05GE081E2J	05GE081E2N	**05I...**	05IE081E2J	05IE081E2N
30 mm	**03G...**	03GE081E2J	03GE081E2N	**-**	-	-

Eurospher II 100 C8 preparative standard columns

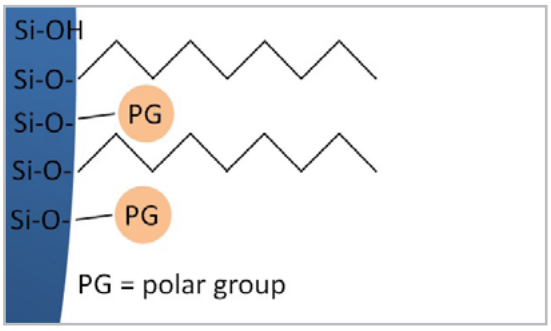
Column length & style	20 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E081E2J	10 µm ...E081E2N	Order No.	5 µm ...E081E2J	10 µm ...E081E2N	Order No.	10 µm ...E081E2N	15 µm ...E081E2Q
250 mm	**25J...**	25JE081E2J	25JE081E2N	**25M...**	25ME081E2J	25ME081E2N	**25O...**	25OE081E2N	25OE081E2Q
150 mm	**15J...**	15JE081E2J	15JE081E2N	**15M...**	15ME081E2J	15ME081E2N	**15O...**	15OE081E2N	15OE081E2Q
50 mm	**05J...**	05JE081E2J	05JE081E2N	**05M...**	05ME081E2J	05ME081E2N	**05O...**	05OE081E2N	05OE081E2Q

Eurospher II 100 C8 preparative dAX columns with dynamic axial compression

Column length & style	25 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E081E2J	10 µm ...E081E2N	Order No.	5 µm ...E081E2J	10 µm ...E081E2N	Order No.	10 µm ...E081E2N	15 µm ...E081E2Q
250 mm	**25T...**	25TE081E2J	25TE081E2N	**25U...**	25UE081E2J	25UE081E2N	**25Z...**	25ZE081E2N	25ZE081E2Q
150 mm	**15T...**	15TE081E2J	15TE081E2N	**15U...**	15UE081E2J	15UE081E2N	**15Z...**	15ZE081E2N	15ZE081E2Q
50 mm	**05T...**	05TE081E2J	05TE081E2N	**05U...**	05UE081E2J	05UE081E2N	**05Z...**	05ZE081E2N	05ZE081E2Q

Eurospher II 100 C8 A - USP L7

- Ultra pure, spherical high performance HPLC phase based on silica gel
- Monomeric C8 (Octyl) modification, standard endcapping, with 10 % carbon content (~ 50 % endcapping)



Properties

Separation mechanism: Hydrophobic interaction (lower compared to C18 phases)

Key features

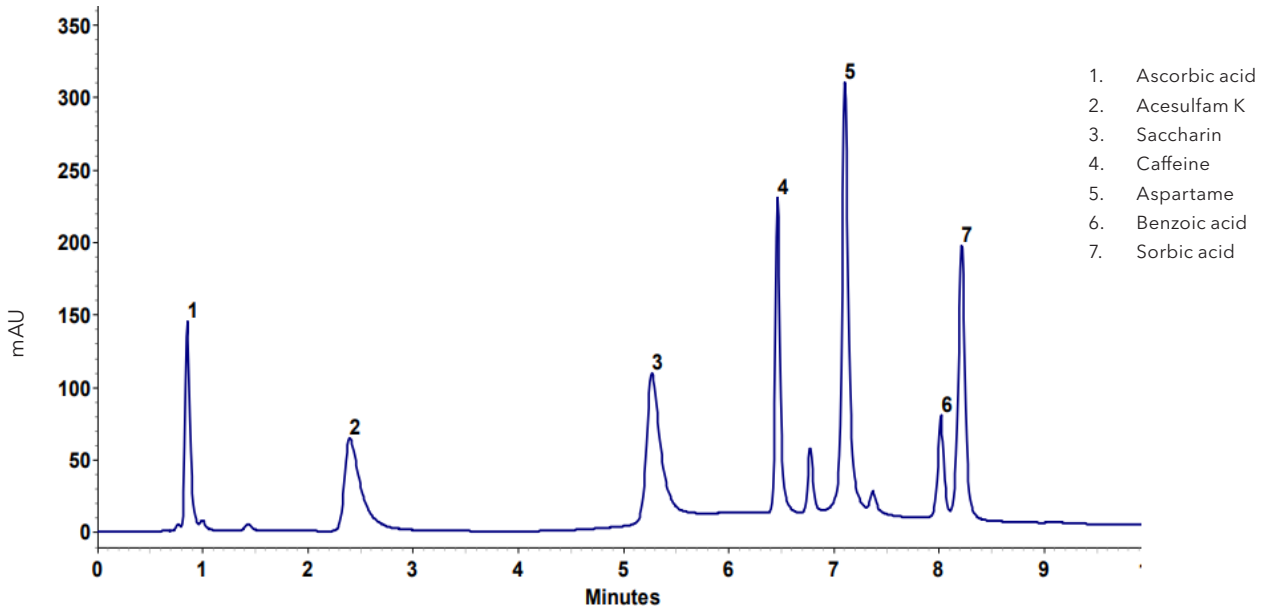
Classical C8 phase, standard 50 % endcapping and 10 % carbon load, outstanding mechanical and chemical stability, suited for analytical as well as semi preparative and preparative applications.

Recommended application areas

Similar selectivity to C18 phase but less retention due to the lower hydrophobicity; useful for determination of water soluble vitamins, steroids, catecholamines, sedatives etc.

Tip: Caution! Even for short term storage all buffer solutions have to be rinsed from the column to prevent crystallization effects.

Eurospher II 100-5 C8A, 100 x 3 mm ID
Article number: 10CE084E2G



Ordering information

Upon request we can also provide further information about more possible combinations of material particle size and hardware configurations. Shown here are only the most common combinations.

Eurospher II 100 C8 A

Column length & equipment	3 mm ID			4 mm ID			4.6 mm ID		
	Order No.	3 µm ...E084E2G	5 µm ...E084E2J	Order No.	3 µm ...E084E2G	5 µm ...E084E2J	Order No.	3 µm ...E084E2G	5 µm ...E084E2J
250 mm	**25C...**	25CE084E2G	25CE084E2J	**25D...**	25DE084E2G	25DE084E2J	**25E...**	25EE084E2G	25EE084E2J
with integrated precolumn	**25X...**	25XE084E2G	25XE084E2J	**25W...**	25WE084E2G	25WE084E2J	**25V...**	25VE084E2G	25VE084E2J
150 mm	**15C...**	15CE084E2G	15CE084E2J	**15D...**	15DE084E2G	15DE084E2J	**15E...**	15EE084E2G	15EE084E2J
with integrated precolumn	**15X...**	15XE084E2G	15XE084E2J	**15W...**	15WE084E2G	15WE084E2J	**15V...**	15VE084E2G	15VE084E2J
100 mm	**10C...**	10CE084E2G	10CE084E2J	**10D...**	10DE084E2G	10DE084E2J	**10E...**	10EE084E2G	10EE084E2J
with integrated precolumn	**10X...**	10XE084E2G	10XE084E2J	**10W...**	10WE084E2G	10WE084E2J	**10V...**	10VE084E2G	10VE084E2J
50 mm	**05C...**	05CE084E2G	05CE084E2J	**05D...**	05DE084E2G	05DE084E2J	**05E...**	05EE084E2G	05EE084E2J
5 mm precolumn cartridge	**P6C...**	P6CE084E2G	P6CE084E2J	**P6C...**	P6CE084E2G	P6CE084E2J	**P6E...**	P6EE084E2G	P6EE084E2J

Column length	2 mm ID		
	Order No.	2 µm ...E084E2F	3 µm ...E084E2G
150 mm	**15B...**	15BE084E2G	15BE084E2J
100 mm	**10B...**	10BE084E2G	10BE084E2J
50 mm	**05B...**	05BE084E2G	05BE084E2J

Eurospher II 100 C8 A semi-preparative standard columns

Column length & style	8 mm ID			16 mm ID		
	Order No.	5 µm ...E084E2J	10 µm ...E084E2N	Order No.	5 µm ...E084E2J	10 µm ...E084E2N
250 mm	**25G...**	25GE084E2J	25GE084E2N	**25I...**	25IE084E2J	25IE084E2N
150 mm	**-**	-	-	**15I...**	15IE084E2J	15IE084E2N
125 mm	**12G...**	12GE084E2J	12GE084E2N	**-**	-	-
50 mm	**05G...**	05GE084E2J	05GE084E2N	**05I...**	05IE084E2J	05IE084E2N
30 mm	**03G...**	03GE084E2J	03GE084E2N	**-**	-	-

Eurospher II 100 C8 A preparative standard columns

Column length & style	20 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E084E2J	10 µm ...E084E2N	Order No.	5 µm ...E084E2J	10 µm ...E084E2N	Order No.	10 µm ...E084E2N	15 µm ...E084E2Q
250 mm	**25J...**	25JE084E2J	25JE084E2N	**25M...**	25ME084E2J	25ME084E2N	**25O...**	25OE084E2N	25OE084E2Q
150 mm	**15J...**	15JE084E2J	15JE084E2N	**15M...**	15ME084E2J	15ME084E2N	**15O...**	15OE084E2N	15OE084E2Q
50 mm	**05J...**	05JE084E2J	05JE084E2N	**05M...**	05ME084E2J	05ME084E2N	**05O...**	05OE084E2N	05OE084E2Q

Eurospher II 100 C8 A preparative dAX columns with dynamic axial compression

Column length & style	25 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E084E2J	10 µm ...E084E2N	Order No.	5 µm ...E084E2J	10 µm ...E084E2N	Order No.	10 µm ...E084E2N	15 µm ...E084E2Q
250 mm	**25T...**	25TE084E2J	25TE084E2N	**25U...**	25UE084E2J	25UE084E2N	**25Z...**	25ZE084E2N	25ZE084E2Q
150 mm	**15T...**	15TE084E2J	15TE084E2N	**15U...**	15UE084E2J	15UE084E2N	**15Z...**	15ZE084E2N	15ZE084E2Q
50 mm	**05T...**	05TE084E2J	05TE084E2N	**05U...**	05UE084E2J	05UE084E2N	**05Z...**	05ZE084E2N	05ZE084E2Q

Eurospher II 100 Phenyl - USP L11

- Ultra pure, spherical high performance HPLC phase based on silica gel
- Phenyl modification (Phenylpropyl), 12 % carbon content

Properties

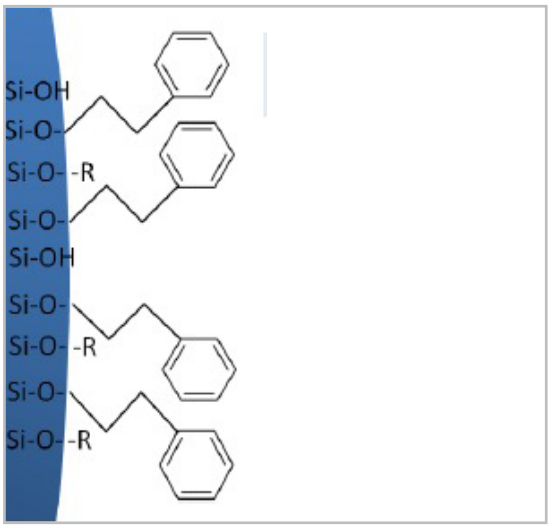
Separation mechanism: Pi-Pi Interactions

Key features

Classical phenyl phase with 12 % carbon load, outstanding mechanical and chemical stability, suited for analytical as well as semi preparative and preparative applications.

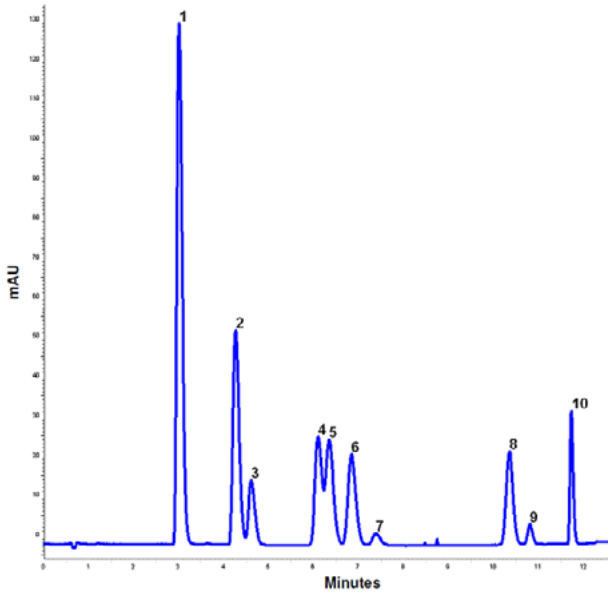
Recommended application areas

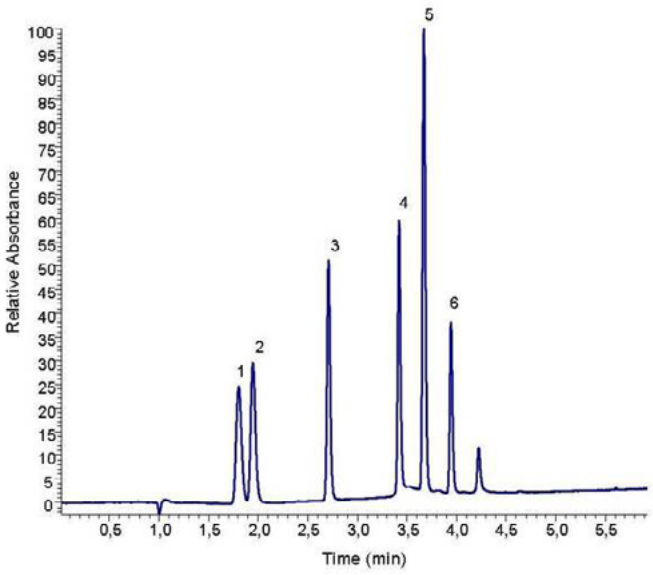
Alternative selectivity for aromatic and mode rately pi-pi interaction polar analytes or mixtures with varying polarity and aromaticity.



Tip: For UHPLC columns like Eurospher II 2 µm particle size, samples and eluents should be filtered through a 0.2 µm instead of a 0.45 µm membrane filter. Frits at column in- and outlet have smaller pores than classical HPLC columns and block more easily.

Eurospher II 100-2 Phenyl, 100 x 2 mm ID
Article number: 10BE050E2F





Aldehydes/Ketones

DNPH-derivatives of

1. Formaldehyde
2. Acetaldehyde
3. Matrix
4. Acrolein
5. Propionaldehyde
6. Acetone
7. Matrix
8. Butyraldehyde
9. Matrix
10. Benzaldehyde

Biocompatible polymer building monomers

1. 2-Hydroxyethylmethacrylate
2. N-Vinyl-2-pyrrolidon
3. Methyl methacrylate
4. Ethylenglycon dimethacrylate
5. Styrene
6. Methacryloxymethyltrimethylsilane

Ordering information

Upon request we can also provide further information about more possible combinations of material particle size and hardware configurations. Shown here are only the most common combinations.

Eurospher II 100 Phenyl

Column length & equipment	3 mm ID			4 mm ID			4.6 mm ID		
	Order No.	3 µm ...E050E2G	5 µm ...E050E2J	Order No.	3 µm ...E050E2G	5 µm ...E050E2J	Order No.	3 µm ...E050E2G	5 µm ...E050E2J
250 mm	**25C...**	25CE050E2G	25CE050E2J	**25D...**	25DE050E2G	25DE050E2J	**25E...**	25EE050E2G	25EE050E2J
with integrated precolumn	**25X...**	25XE050E2G	25XE050E2J	**25W...**	25WE050E2G	25WE050E2J	**25V...**	25VE050E2G	25VE050E2J
150 mm	**15C...**	15CE050E2G	15CE050E2J	**15D...**	15DE050E2G	15DE050E2J	**15E...**	15EE050E2G	15EE050E2J
with integrated precolumn	**15X...**	15XE050E2G	15XE050E2J	**15W...**	15WE050E2G	15WE050E2J	**15V...**	15VE050E2G	15VE050E2J
100 mm	**10C...**	10CE050E2G	10CE050E2J	**10D...**	10DE050E2G	10DE050E2J	**10E...**	10EE050E2G	10EE050E2J
with integrated precolumn	**10X...**	10XE050E2G	10XE050E2J	**10W...**	10WE050E2G	10WE050E2J	**10V...**	10VE050E2G	10VE050E2J
50 mm	**05C...**	05CE050E2G	05CE050E2J	**05D...**	05DE050E2G	05DE050E2J	**05E...**	05EE050E2G	05EE050E2J
5 mm precolumn cartridge	**P6C...**	P6CE050E2G	P6CE050E2J	**P6C...**	P6CE050E2G	P6CE050E2J	**P6E...**	P6EE050E2G	P6EE050E2J

Column length	2 mm ID		
	Order No.	2 µm ...E050E2F	3 µm ...E050E2G
150 mm	**15B...**	15BE050E2F	15BE050E2G
100 mm	**10B...**	10BE050E2F	10BE050E2G
50 mm	**05B...**	05BE050E2F	05BE050E2G

Eurospher II 100 Phenyl semi-preparative standard columns

Column length & style	8 mm ID			16 mm ID		
	Order No.	5 µm ...E050E2J	10 µm ...E050E2N	Order No.	5 µm ...E050E2J	10 µm ...E050E2N
250 mm	**25G...**	25GE050E2J	25GE050E2N	**25I...**	25IE050E2J	25IE050E2N
150 mm	**-**	-	-	**15I...**	15IE050E2J	15IE050E2N
125 mm	**12G...**	12GE050E2J	12GE050E2N	**-**	-	-
50 mm	**05G...**	05GE050E2J	05GE050E2N	**05I...**	05IE050E2J	05IE050E2N
30 mm	**03G...**	03GE050E2J	03GE050E2N	**-**	-	-

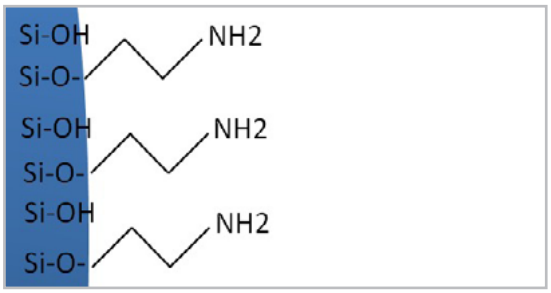
Eurospher II 100 Phenyl preparative standard columns

Column length & style	20 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E050E2J	10 µm ...E050E2N	Order No.	5 µm ...E050E2J	10 µm ...E050E2N	Order No.	10 µm ...E050E2N	15 µm ...E050E2Q
250 mm	**25J...**	25JE050E2J	25JE050E2N	**25M...**	25ME050E2J	-25ME050E2N	**25O...**	25OE050E2N	25OE050E2Q
150 mm	**15J...**	15JE050E2J	15JE050E2N	**15M...**	15ME050E2J	15ME050E2N	**15O...**	15OE050E2N	15OE050E2Q
50 mm	**05J...**	05JE050E2J	05JE050E2N	**05M...**	05ME050E2J	05ME050E2N	**05O...**	05OE050E2N	05OE050E2Q

Eurospher II 100 Phenyl preparative dAX columns with dynamic axial compression

Column length & style	25 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E050E2J	10 µm ...E050E2N	Order No.	5 µm ...E050E2J	10 µm ...E050E2N	Order No.	10 µm ...E050E2N	15 µm ...E050E2Q
250 mm	**25T...**	25TE050E2J	25TE050E2N	**25U...**	25UE050E2J	25UE050E2N	**25Z...**	25ZE050E2N	25ZE050E2Q
150 mm	**15T...**	15TE050E2J	15TE050E2N	**15U...**	15UE050E2J	15UE050E2N	**15Z...**	15ZE050E2N	15ZE050E2Q
50 mm	**05T...**	05TE050E2J	05TE050E2N	**05U...**	05UE050E2J	05UE050E2N	**05Z...**	05ZE050E2N	05ZE050E2Q

Eurospher II 100 NH2 - USP L8



- Ultra pure, spherical high performance HPLC phase based on silica gel
- Amino modification (Aminopropyl)
- 4 % carbon content (without endcapping)

Properties

Separation mechanism: Hydrophilic and ionic interactions

Key features

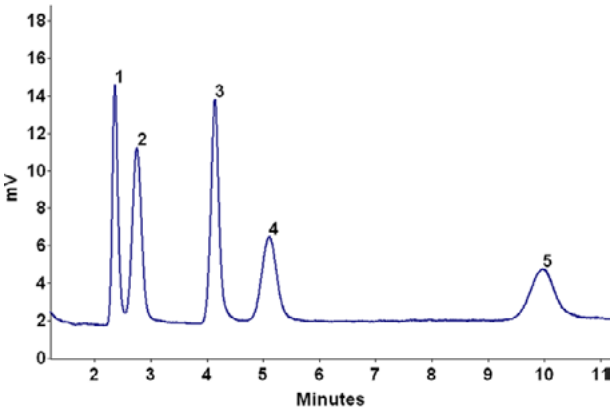
Multi mode column for RP, NP, HILIC and IC, Amino-propyl modification without endcapping, outstanding mechanical and chemical stability.

Recommended application areas

Most flexible phase in the Eurospher II family; can be used in three modes: normal phase, reversed phase and ion chromatography mode (weak anion exchanger); different selectivity to the silica packing; in reversed phase mode mainly used for analysis of carbohydrates.

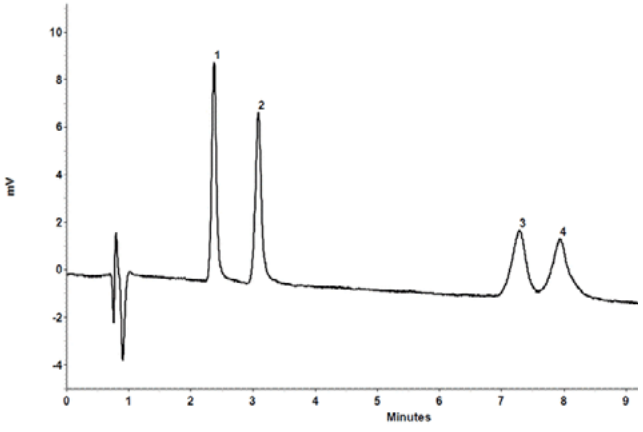
Tip: A precolumn can help to protect your analytical column. Especially when working with highly matrix afflicted samples it is highly recommended to use precolumns.

Eurospher II 100-3 NH2, 100 x 3.0 mm ID
Article number: 10CE190E2G



Carbohydrates

1. Fructose
2. Glucose
3. Saccharose
4. Maltose
5. Maltotriose



Sweeteners

1. Xylitol
2. Sorbitol
3. Isomalt
4. Lactitol

Ordering information

Upon request we can also provide further information about more possible combinations of material particle size and hardware configurations. Shown here are only the most common combinations.

Eurospher II 100 NH2

Column length & equipment	3 mm ID			4 mm ID			4.6 mm ID		
	Order No.	3 µm ...E190E2G	5 µm ...E190E2J	Order No.	3 µm ...E190E2G	5 µm ...E190E2J	Order No.	3 µm ...E190E2G	5 µm ...E190E2J
250 mm	**25C...**	25CE190E2G	25CE190E2J	**25D...**	25DE190E2G	25DE190E2J	**25E...**	25EE190E2G	25EE190E2J
with integrated precolumn	**25X...**	25XE190E2G	25XE190E2J	**25W...**	25WE190E2G	25WE190E2J	**25V...**	25VE190E2G	25VE190E2J
150 mm	**15C...**	15CE190E2G	15CE190E2J	**15D...**	15DE190E2G	15DE190E2J	**15E...**	15EE190E2G	15EE190E2J
with integrated precolumn	**15X...**	15XE190E2G	15XE190E2J	**15W...**	15WE190E2G	15WE190E2J	**15V...**	15VE190E2G	15VE190E2J
100 mm	**10C...**	10CE190E2G	10CE190E2J	**10D...**	10DE190E2G	10DE190E2J	**10E...**	10EE190E2G	10EE190E2J
with integrated precolumn	**10X...**	10XE190E2G	10XE190E2J	**10W...**	10WE190E2G	10WE190E2J	**10V...**	10VE190E2G	10VE190E2J
50 mm	**05C...**	05CE190E2G	05CE190E2J	**05D...**	05DE190E2G	05DE190E2J	**05E...**	05EE190E2G	05EE190E2J
5 mm precolumn cartridge	**P6C...**	P6CE190E2G	P6CE190E2J	**P6C...**	P6CE190E2G	P6CE190E2J	**P6E...**	P6EE190E2G	P6EE190E2J

Eurospher II 100 NH2 semi-preparative standard columns

Column length & style	8 mm ID			16 mm ID		
	Order No.	5 µm ...E190E2J	10 µm ...E190E2N	Order No.	5 µm ...E190E2J	10 µm ...E190E2N
250 mm	**25G...**	25GE190E2J	25GE190E2N	**25I...**	25IE190E2J	25IE190E2N
150 mm	**-**	-	-	**15I...**	15IE190E2J	15IE190E2N
125 mm	**12G...**	12GE190E2J	12GE190E2N	**-**	-	-
50 mm	**05G...**	05GE190E2J	05GE190E2N	**05I...**	05IE190E2J	05IE190E2N
30 mm	**03G...**	03GE190E2J	03GE190E2N	**-**	-	-

Eurospher II 100 NH2 preparative standard columns

Column length & style	20 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E190E2J	10 µm ...E190E2N	Order No.	5 µm ...E190E2J	10 µm ...E190E2N	Order No.	10 µm ...E190E2N	15 µm ...E190E2Q
250 mm	**25J...**	25JE190E2J	25JE190E2N	**25M...**	25ME190E2J	25ME190E2N	**25O...**	25OE190E2N	25OE190E2Q
150 mm	**15J...**	15JE190E2J	15JE190E2N	**15M...**	15ME190E2J	15ME190E2N	**15O...**	15OE190E2N	15OE190E2Q
50 mm	**05J...**	05JE190E2J	05JE190E2N	**05M...**	05ME190E2J	05ME190E2N	**05O...**	05OE190E2N	05OE190E2Q

Eurospher II 100 NH2 preparative dAX columns with dynamic axial compression

Column length & style	25 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E190E2J	10 µm ...E190E2N	Order No.	5 µm ...E190E2J	10 µm ...E190E2N	Order No.	10 µm ...E190E2N	15 µm ...E190E2Q
250 mm	**25T...**	25TE190E2J	25TE190E2N	**25U...**	25UE190E2J	25UE190E2N	**25Z...**	25ZE190E2N	25ZE190E2Q
150 mm	**15T...**	15TE190E2J	15TE190E2N	**15U...**	15UE190E2J	15UE190E2N	**15Z...**	15ZE190E2N	15ZE190E2Q
50 mm	**05T...**	05TE190E2J	05TE190E2N	**05U...**	05UE190E2J	05UE190E2N	**05Z...**	05ZE190E2N	05ZE190E2Q

Eurospher II 100 Si

- Ultra pure, spherical high performance HPLC phase based on silica gel
- No modification, no endcapping, with 0 % carbon content

Properties

Hydrophilic interaction

Key features

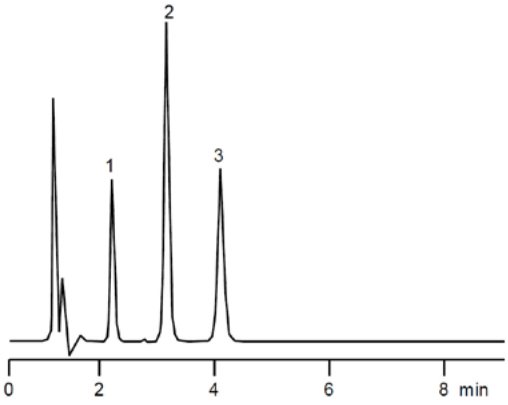
High-class HPLC phase perfectly suited to take on routine analyses as well as the most ambitious chromatography tasks, outstanding mechanical and chemical stability.

Recommended application areas

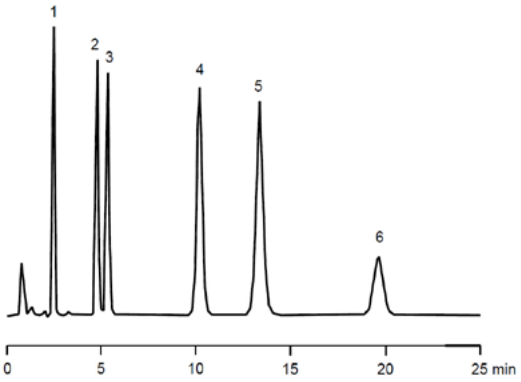
Wide range of different applications, i.e. SEC (size exclusion chromatography) but also for normal phase HPLC and HILIC; good choice for analytical and preparative purposes to separate polar compounds.

Tip: Normal phase (NP) stationary phases have been the first phases for chromatography and that is why their properties of polarity were determined as ''normal''. The stationary phase of a NP column has polar properties and is commonly used with nonpolar solvents as hexane or heptane. The other way round a reversed phase (RP) column has covalent charcteristics and is used with more polar eluents, like mixtures of acetonitrile and water.

Eurospher 100-5 Si, Column 150 x 4 mm
Article No.: 15DE000ESJ



1. 2-Nitroaniline
2. 3-Nitroaniline
3. 4-Nitroaniline



1. alpha-Tocopherol
2. beta-Tocopherol
3. gamma-Tocopherol
4. delta-Tocopherol
5. Vitamin D2
6. trans-Retinol

Ordering information

Upon request we can also provide further information about more possible combinations of material particle size and hardware configurations. Shown here are only the most common combinations.

Eurospher II 100 Si

Column length & equipment	3 mm ID			4 mm ID			4.6 mm ID		
	Order No.	3 µm ...E000E2G	5 µm ...E000E2J	Order No.	3 µm ...E000E2G	5 µm ...E000E2J	Order No.	3 µm ...E000E2G	5 µm ...E000E2J
250 mm	**25C...**	25CE000E2G	25CE000E2J	**25D...**	25DE000E2G	25DE000E2J	**25E...**	25EE000E2G	25EE000E2J
with integrated precolumn	**25X...**	25XE000E2G	25XE000E2J	**25W...**	25WE000E2G	25WE000E2J	**25V...**	25VE000E2G	25VE000E2J
150 mm	**15C...**	15CE000E2G	15CE000E2J	**15D...**	15DE000E2G	15DE000E2J	**15E...**	15EE000E2G	15EE000E2J
with integrated precolumn	**15X...**	15XE000E2G	15XE000E2J	**15W...**	15WE000E2G	15WE000E2J	**15V...**	15VE000E2G	15VE000E2J
100 mm	**10C...**	10CE000E2G	10CE000E2J	**10D...**	10DE000E2G	10DE000E2J	**10E...**	10EE000E2G	10EE000E2J
with integrated precolumn	**10X...**	10XE000E2G	10XE000E2J	**10W...**	10WE000E2G	10WE000E2J	**10V...**	10VE000E2G	10VE000E2J
50 mm	**05C...**	05CE000E2G	05CE000E2J	**05D...**	05DE000E2G	05DE000E2J	**05E...**	05EE000E2G	05EE000E2J
5 mm precolumn cartridge	**P6C...**	P6CE000E2G	P6CE000E2J	**P6C...**	P6CE000E2G	P6CE000E2J	**P6E...**	P6EE000E2G	P6EE000E2J

Eurospher II 100 Si semi-preparative standard columns

Column length & style	8 mm ID			16 mm ID		
	Order No.	5 µm ...E000E2J	10 µm ...E000E2N	Order No.	5 µm ...E000E2J	10 µm ...E000E2N
250 mm	**25G...**	25GE000E2J	25GE000E2N	**25I...**	25IE000E2J	25IE000E2N
150 mm	**-**	-	-	**15I...**	15IE000E2J	15IE000E2N
125 mm	**12G...**	12GE000E2J	12GE000E2N	**-**	-	-
50 mm	**05G...**	05GE000E2J	05GE000E2N	**05I...**	05IE000E2J	05IE000E2N
30 mm	**03G...**	03GE000E2J	03GE000E2N	**-**	-	-

Eurospher II 100 Si preparative standard columns

Column length & style	20 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E000E2J	10 µm ...E000E2N	Order No.	5 µm ...E000E2J	10 µm ...E000E2N	Order No.	10 µm ...E000E2N	15 µm ...E000E2Q
250 mm	**25J...**	25JE000E2J	25JE000E2N	**25M...**	25ME000E2J	25ME000E2N	**25O...**	25OE000E2N	25OE000E2Q
150 mm	**15J...**	15JE000E2J	15JE000E2N	**15M...**	15ME000E2J	15ME000E2N	**15O...**	15OE000E2N	15OE000E2Q
50 mm	**05J...**	05JE000E2J	05JE000E2N	**05M...**	05ME000E2J	05ME000E2N	**05O...**	05OE000E2N	05OE000E2Q

Eurospher II 100 Si preparative dAX columns with dynamic axial compression

Column length & style	25 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E000E2J	10 µm ...E000E2N	Order No.	5 µm ...E000E2J	10 µm ...E000E2N	Order No.	10 µm ...E000E2N	15 µm ...E000E2Q
250 mm	**25T...**	25TE000E2J	25TE000E2N	**25U...**	25UE000E2J	25UE000E2N	**25Z...**	25ZE000E2N	25ZE000E2Q
150 mm	**15T...**	15TE000E2J	15TE000E2N	**15U...**	15UE000E2J	15UE000E2N	**15Z...**	15ZE000E2N	15ZE000E2Q
50 mm	**05T...**	05TE000E2J	05TE000E2N	**05U...**	05UE000E2J	05UE000E2N	**05Z...**	05ZE000E2N	05ZE000E2Q

Eurospher II 100 Diol

- Ultra pure, spherical high performance HPLC phase based on silica gel
- Diol, no endcapping, with 5 % carbon content

Properties

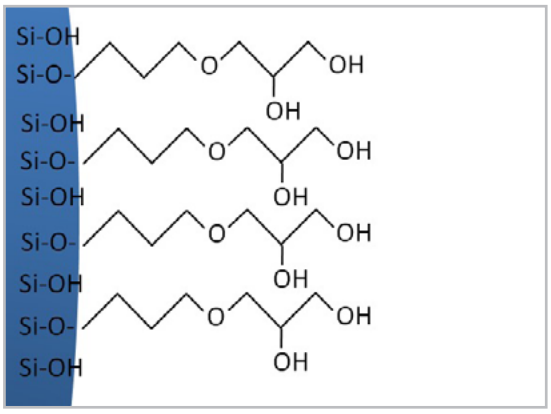
Hydrophilic interaction

Key features

High-class HPLC phase perfectly suited to take on routine analyses as well as the most ambitious chromatography tasks, classical Diol phase without endcapping and 5 % carbon content, outstanding mechanical and chemical stability.

Recommended application areas

Alternative to the silica packing with shorter equilibration time and comparable selectivity; due to the lower activity of these packings it can be also used for SEC-applications.



Tip: The most important column parameters for evaluation are retention time, peak symmetry and theoretical plates. Retention time to prove the reproducibility of measurements. Peak symmetry to estimate how good the column bed is packed (peak symmetry value of 1.0 is optimal). Theoretical plate numbers to determine the effectiveness of the HPLC column.

Most common HPLC modes

HPLC mode	Mobile phase	Stationary phase	Analytes
Separation of small molecules (up to 2000 Da)			
Reversed Phase RP (<200 Å)	Polar (e.g. mixtures from water and acetonitrile)	Nonpolar (e.g. C18)	Mid-polar – mid-nonpolar soluble in polar and aqueous solvents
Normal Phase NP	Nonpolar (e.g. heptan)	Polar (e.g. SiOH)	Nonpolar soluble in nonpolar solvents, insoluble in water
Hydrophilic Interaction Liquid Chromatography HILIC	Polar organic solvents + water	Polar (e.g. SiOH)	hydrophilic and highly polar not retained by RP

Water layer between stationary and mobile phase

Ordering information

Upon request we can also provide further information about more possible combinations of material particle size and hardware configurations. Shown here are only the most common combinations.

Eurospher II 100 Diol

Column length & equipment	3 mm ID			4 mm ID			4.6 mm ID		
	Order No.	3 µm ...E410E2G	5 µm ...E410E2J	Order No.	3 µm ...E410E2G	5 µm ...E410E2J	Order No.	3 µm ...E410E2G	5 µm ...E410E2J
250 mm	**25C...**	25CE410E2G	25CE410E2J	**25D...**	25DE410E2G	25DE410E2J	**25E...**	25EE410E2G	25EE410E2J
with integrated precolumn	**25X...**	25XE410E2G	25XE410E2J	**25W...**	25WE410E2G	25WE410E2J	**25V...**	25VE410E2G	25VE410E2J
150 mm	**15C...**	15CE410E2G	15CE410E2J	**15D...**	15DE410E2G	15DE410E2J	**15E...**	15EE410E2G	15EE410E2J
with integrated precolumn	**15X...**	15XE410E2G	15XE410E2J	**15W...**	15WE410E2G	15WE410E2J	**15V...**	15VE410E2G	15VE410E2J
100 mm	**10C...**	10CE410E2G	10CE410E2J	**10D...**	10DE410E2G	10DE410E2J	**10E...**	10EE410E2G	10EE410E2J
with integrated precolumn	**10X...**	10XE410E2G	10XE410E2J	**10W...**	10WE410E2G	10WE410E2J	**10V...**	10VE410E2G	10VE410E2J
50 mm	**05C...**	05CE410E2G	05CE410E2J	**05D...**	05DE410E2G	05DE410E2J	**05E...**	05EE410E2G	05EE410E2J
5 mm precolumn cartridge	**P6C...**	P6CE410E2G	P6CE410E2J	**P6C...**	P6CE410E2G	P6CE410E2J	**P6E...**	P6EE410E2G	P6EE410E2J

Eurospher II 100 Diol semi-preparative standard columns

Column length & style	8 mm ID			16 mm ID		
	Order No.	5 µm ...E410E2J	10 µm ...E410E2N	Order No.	5 µm ...E410E2J	10 µm ...E410E2N
250 mm	**25G...**	25GE410E2J	25GE410E2N	**25I...**	25IE410E2J	25IE410E2N
150 mm	**-**	-	-	**15I...**	15IE410E2J	15IE410E2N
125 mm	**12G...**	12GE410E2J	12GE410E2N	**-**	-	-
50 mm	**05G...**	05GE410E2J	05GE410E2N	**05I...**	05IE410E2J	05IE410E2N
30 mm	**03G...**	03GE410E2J	03GE410E2N	**-**	-	-

Eurospher II 100 Diol preparative standard columns

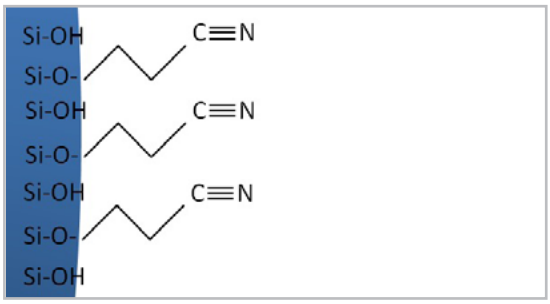
Column length & style	20 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E410E2J	10 µm ...E410E2N	Order No.	5 µm ...E410E2J	10 µm ...E410E2N	Order No.	10 µm ...E410E2N	15 µm ...E410E2Q
250 mm	**25J...**	25JE410E2J	25JE410E2N	**25M...**	25ME410E2J	25ME410E2N	**25O...**	25OE410E2N	25OE410E2Q
150 mm	**15J...**	15JE410E2J	15JE410E2N	**15M...**	15ME410E2J	15ME410E2N	**15O...**	15OE410E2N	15OE410E2Q
50 mm	**05J...**	05JE410E2J	05JE410E2N	**05M...**	05ME410E2J	05ME410E2N	**05O...**	05OE410E2N	05OE410E2Q

Eurospher II 100 Diol preparative dAX columns with dynamic axial compression

Column length & style	25 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E410E2J	10 µm ...E410E2N	Order No.	5 µm ...E410E2J	10 µm ...E410E2N	Order No.	10 µm ...E410E2N	15 µm ...E410E2Q
250 mm	**25T...**	25TE410E2J	25TE410E2N	**25U...**	25UE410E2J	25UE410E2N	**25Z...**	25ZE410E2N	25ZE410E2Q
150 mm	**15T...**	15TE410E2J	15TE410E2N	**15U...**	15UE410E2J	15UE410E2N	**15Z...**	15ZE410E2N	15ZE410E2Q
50 mm	**05T...**	05TE410E2J	05TE410E2N	**05U...**	05UE410E2J	05UE410E2N	**05Z...**	05ZE410E2N	05ZE410E2Q

Eurospher II 100 CN

- Ultra pure, spherical high performance HPLC phase based on silica gel
- Cyano modification (Cyanopropyl), no endcapping, with 7 % carbon content



Properties

Hydrophobic and hydrophilic interaction

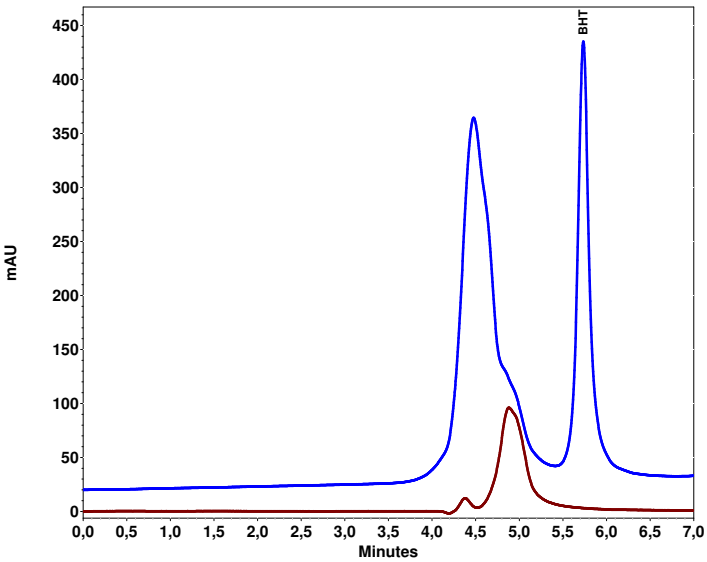
Key features

Classical phenyl phase with 7 % carbon load, outstanding mechanical and chemical stability, suited for analytical as well as semi preparative and preparative applications.

Recommended application areas

For a wide range of application in normal phase mode as well as reversed phase mode (steroids, carbohydrates polar compounds).

Eurospher II 100-5 CN, 250 x 3 mm
Article number: 25CE200E2J



Determination of BHT in rolling oil

- fresh rolling oil
- blue spiked used rolling oil

Ordering information

Upon request we can also provide further information about more possible combinations of material particle size and hardware configurations. Shown here are only the most common combinations.

Eurospher II 100 CN

Column length & equipment	3 mm ID			4 mm ID			4.6 mm ID		
	Order No.	3 µm ...E200E2G	5 µm ...E200E2J	Order No.	3 µm ...E200E2G	5 µm ...E200E2J	Order No.	3 µm ...E200E2G	5 µm ...E200E2J
250 mm	**25C...**	25CE200E2G	25CE200E2J	**25D...**	25DE200E2G	25DE200E2J	**25E...**	25EE200E2G	25EE200E2J
with integrated precolumn	**25X...**	25XE200E2G	25XE200E2J	**25W...**	25WE200E2G	25WE200E2J	**25V...**	25VE200E2G	25VE200E2J
150 mm	**15C...**	15CE200E2G	15CE200E2J	**15D...**	15DE200E2G	15DE200E2J	**15E...**	15EE200E2G	15EE200E2J
with integrated precolumn	**15X...**	15XE200E2G	15XE200E2J	**15W...**	15WE200E2G	15WE200E2J	**15V...**	15VE200E2G	15VE200E2J
100 mm	**10C...**	10CE200E2G	10CE200E2J	**10D...**	10DE200E2G	10DE200E2J	**10E...**	10EE200E2G	10EE200E2J
with integrated precolumn	**10X...**	10XE200E2G	10XE200E2J	**10W...**	10WE200E2G	10WE200E2J	**10V...**	10VE200E2G	10VE200E2J
50 mm	**05C...**	05CE200E2G	05CE200E2J	**05D...**	05DE200E2G	05DE200E2J	**05E...**	05EE200E2G	05EE200E2J
5 mm precolumn cartridge	**P6C...**	P6CE200E2G	P6CE200E2J	**P6C...**	P6CE200E2G	P6CE200E2J	**P6E...**	P6EE200E2G	P6EE200E2J

Eurospher II 100 CN semi-preparative standard columns

Column length & style	8 mm ID			16 mm ID		
	Order No.	5 µm ...E200E2J	10 µm ...E200E2N	Order No.	5 µm ...E200E2J	10 µm ...E200E2N
250 mm	**25G...**	25GE200E2J	25GE200E2N	**25I...**	25IE200E2J	25IE200E2N
150 mm	**-**	-	-	**15I...**	15IE200E2J	15IE200E2N
125 mm	**12G...**	12GE200E2J	12GE200E2N	**-**	-	-
50 mm	**05G...**	05GE200E2J	05GE200E2N	**05I...**	05IE200E2J	05IE200E2N
30 mm	**03G...**	03GE200E2J	03GE200E2N	**-**	-	-

Eurospher II 100 CN preparative standard columns

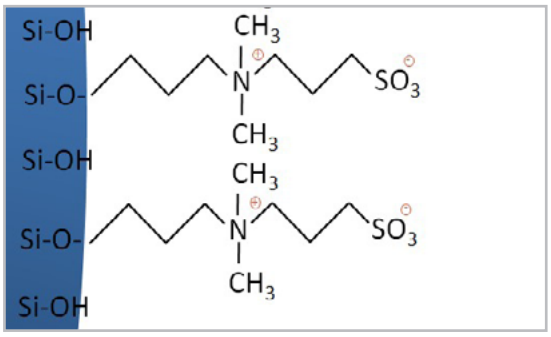
Column length & style	20 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E200E2J	10 µm ...E200E2N	Order No.	5 µm ...E200E2J	10 µm ...E200E2N	Order No.	10 µm ...E200E2N	15 µm ...E200E2Q
250 mm	**25J...**	25JE200E2J	25JE200E2N	**25M...**	25ME200E2J	25ME200E2N	**25O...**	25OE200E2N	25OE200E2Q
150 mm	**15J...**	15JE200E2J	15JE200E2N	**15M...**	15ME200E2J	15ME200E2N	**15O...**	15OE200E2N	15OE200E2Q
50 mm	**05J...**	05JE200E2J	05JE200E2N	**05M...**	05ME200E2J	05ME200E2N	**05O...**	05OE200E2N	05OE200E2Q

Eurospher II 100 CN preparative dAX columns with dynamic axial compression

Column length & style	25 mm ID			30 mm ID			50 mm ID		
	Order No.	5 µm ...E200E2J	10 µm ...E200E2N	Order No.	5 µm ...E200E2J	10 µm ...E200E2N	Order No.	10 µm ...E200E2N	15 µm ...E200E2Q
250 mm	**25T...**	25TE200E2J	25TE200E2N	**25U...**	25UE200E2J	25UE200E2N	**25Z...**	25ZE200E2N	25ZE200E2Q
150 mm	**15T...**	15TE200E2J	15TE200E2N	**15U...**	15UE200E2J	15UE200E2N	**15Z...**	15ZE200E2N	15ZE200E2Q
50 mm	**05T...**	05TE200E2J	05TE200E2N	**05U...**	05UE200E2J	05UE200E2N	**05Z...**	05ZE200E2N	05ZE200E2Q

Eurospher II 100 HILIC

- Ultra pure, spherical high performance HPLC phase based on silica gel
- Zwitterionic modification: Ammonium – sulfonic acid
- 7 % carbon content



Properties

Separation mechanism: Hydrophilic and weak electrostatic interactions

Key features

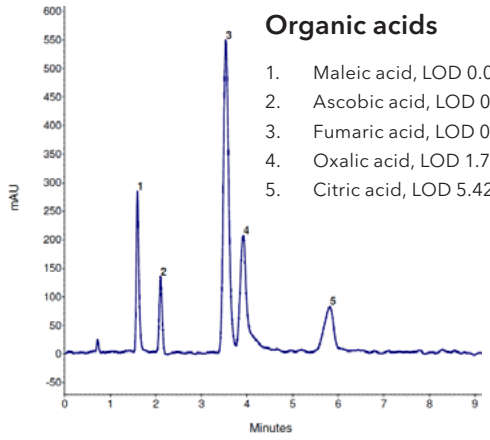
Modern HILIC phase with zwitterionic modification on the basis of ammonium- sulfonic acid. Outstanding mechanical and chemical stability.

Recommended application areas

Especially suited for the separation of hydrophilic, polar and ionic analytes which are poorly retained on reversed phase columns; behavior is the other way round on Eurospher II HILIC compared to RP which makes it an ideal tool to enhance chromatographic separations for these molecules.

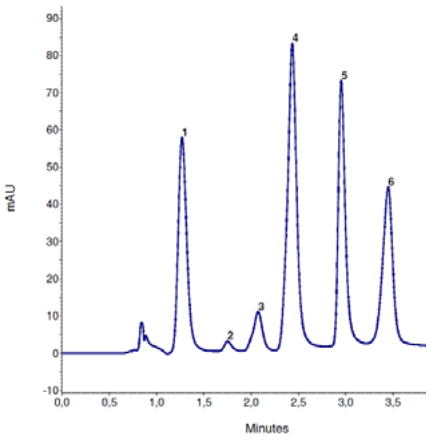
Tip: HILIC applications are well-suited for coupling with MS detection. The high organic content of the applied mobile phases are qualified well for evaporation in the MS´s ionization source.

Eurospher II 100-5 HILIC, 150 x 3 mm ID
Article number: 15CE120E2J



Organic acids

1. Maleic acid, LOD 0.016 mg/ml
2. Ascobic acid, LOD 0.258 mg/ml
3. Fumaric acid, LOD 0.032 mg/ml
4. Oxalic acid, LOD 1.770 mg/ml
5. Citric acid, LOD 5.422 mg/ml



Water soluble vitamins

1. Pyridoxal (Vitamin B6)
2. Folic acid (Vitamin B9)
3. Ascorbic acid (Vitamin C)
4. Nicotinic acid (Vitamin B3)
5. Thiamine (Vitamin B1)
6. Cyanocobalamine (Vitamin B12)

Column length & equipment	3 mm ID			4 mm ID			4.6 mm ID		
	Order No.	3 µm ...E120E2G	5 µm ...E120E2J	Order No.	3 µm ...E120E2G	5 µm ...E120E2J	Order No.	3 µm ...E120E2G	5 µm ...E120E2J
250 mm	**25C...**	25CE120E2G	25CE120E2J	**25D...**	25DE120E2G	25DE120E2J	**25E...**	25EE120E2G	25EE120E2J
with integrated precolumn	**25X...**	25XE120E2G	25XE120E2J	**25W...**	25WE120E2G	25WE120E2J	**25V...**	25VE120E2G	25VE120E2J
150 mm	**15C...**	15CE120E2G	15CE120E2J	**15D...**	15DE120E2G	15DE120E2J	**15E...**	15EE120E2G	15EE120E2J
with integrated precolumn	**15X...**	15XE120E2G	15XE120E2J	**15W...**	15WE120E2G	15WE120E2J	**15V...**	15VE120E2G	15VE120E2J
100 mm	**10C...**	10CE120E2G	10CE120E2J	**10D...**	10DE120E2G	10DE120E2J	**10E...**	10EE120E2G	10EE120E2J
with integrated precolumn	**10X...**	10XE120E2G	10XE120E2J	**10W...**	10WE120E2G	10WE120E2J	**10V...**	10VE120E2G	10VE120E2J
50 mm	**05C...**	05CE120E2G	05CE120E2J	**05D...**	05DE120E2G	05DE120E2J	**05E...**	05EE120E2G	05EE120E2J
5 mm precolumn cartridge	**P6C...**	P6CE120E2G	P6CE120E2J	**P6C...**	P6CE120E2G	P6CE120E2J	**P6E...**	P6EE120E2G	P6EE120E2J

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